MARINE RESEARCH ACT OF 1988

HEARING

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY

AND THE

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT

OF THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

H.R. 4231

A BILL TO AMEND THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972 TO PROTECT THE MARINE ENVIRONMENT THROUGH THE ESTABLISHMENT OF REGIONAL MARINE RESEARCH CENTERS

JUNE 29, 1988

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MARINE RESEARCH ACT OF 1988

WEDNESDAY, JUNE 29, 1988

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON OCEANOGRAPHY, AND SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT, COMMITTEE ON MERCHANT MARINE AND FISHERIES,

Washington, DC.

The subcommittees met, pursuant to notice, at 2:05 p.m., in room 1334, Longworth House Office Building, Hon. Mike Lowry (chairman of the Subcommittee on Oceanography) presiding.

Present: Representatives Lowry, Studds, Hertel, Dyson, Carper, Tallon, and Brennan.

Staff present: Curt Marshall, Nancy Tyson, Joyce Sacco, Will Stelle, Russell Shay, Lisa Pittman, Larry Flick, Rod Moore, and Tom Melius.

STATEMENT OF HON. MIKE LOWRY, CHAIRMAN, SUBCOMMITTEE ON OCEANOGRAPHY

Mr. LOWRY. I call the hearing of the Subcommittee on Oceanography to order, please.

Today the Subcommittee is holding the hearing in conjunction with the Subcommittee on Fisheries and Wildlife Conservation and the Environment on H.R. 4231, the Marine Research Act of 1988, which amends the marine Protection, Research and Sanctuaries Act to establish regional marine research centers around the Country. The prime sponsor of this bill is our colleague, Mr. Brennan from Maine.

Senator Mitchell, as I think everyone knows, has been a leader of this effort in the Senate, and Congressman Brennan, along with Congresswoman Schneider and some of our other colleagues here on this Committee, have been leaders on our side of the Capitol Dome on this very important issue.

I'd like to call on Congressman Brennan for any opening statement he might have.

STATEMENT OF HON. JOSEPH E. BRENNAN, A U.S. REPRESENTATIVE FROM MAINE

Mr. BRENNAN. Thank you very much, Mr. Chairman, and I want to commend you for holding this hearing. This is a sort of Maine Day at the Merchant Marine and Fisheries Committee.

It's a special honor to be able to welcome my good friend, Senator George Mitchell, who has been fighting for this legislation in

the Senate. He truly has shown superb leadership in trying to move this legislation to protect our marine environment.

I'd also like to welcome the former Governor of Maine for eight years, Ken Curtis, and thank him for coming down to testify. He comes with a superb background on this matter, not only being a former Governor, but as President of the Maine Maritime Academy, and as a representative of the Association for Research into the Gulf of Maine. So his leadership has been very, very valuable in this are for a long number of years.

The bill before us is a response to growing signs nationwide that our marine environment is threatened. In my State of Maine this environment supports a very important resource, the fisheries. Fish landings in Maine were valued at over $100 million in 1986, but the fishing industry is, frankly, more than a business in my State. It's a way of life for a lot of our people. And we want to protect that way of life.

Last Spring, researchers in Maine found high levels of polyaromatic hydrocarbons in sediments and in lead in some fish tissue. Those findings have been the source of great concern to many of us. I know that others on these subcommittees have expressed similar concerns. My colleagues from New Jersey, Mr. Hughes and Mr. Saxton, have told these subcommittees of dolphin killings in garbage washups and the like on the beaches. Yourself, Chairman Lowry, you've heard testimony from the Director of the Puget Sound Water Quality Authority, Katherine Fletcher, of the flow of toxicants into Puget Sound. And just Monday, I believe, in the Washington Post we read of Carolina's troubled waters, an article describing outbreaks of brown tide, shell fish disease and the like.

The Marine Research Act seeks to provide a basis for addressing these problems. It would establish regional marine research centers composed of representatives from existing research institutions, State agencies, universities, and private research labs. The centers' purpose would be to plan, to coordinate, and to support marine research at the regional level. The Federal Government would provide limited oversight through a marine research coordination board.

Groups such as the commercial fishing industry, and environment organizations would play a role in regional research planning. The bill authorizes some $32 million a year for a period of five years.

I look forward to hearing the witnesses' testimony on this approach. There are some basic questions I'd like to get at here. Are we currently, for example, doing enough research to address the threats that we're facing? Does a regional approach truly make sense? And should we be working through existing regional institutions, or should we expand the Federal Government to fill this role?

I look forward to hearing from the witnesses. Thank you, Mr. Chairman.

Mr. LOWRY. Thank you, Mr. Brennan, for your leadership on this issue. And for pushing the subcommittees to have this hearing today. Thank you very much.

I'd like to ask unanimous consent that a statement by the ranking minority member of the full committee, Mr. Davis, be entered into the record.

[The opening statement of Mr. Davis follows:]

STATEMENT OF HON. ROBERT W. DAVIS, A U.S. REPRESENTATIVE FROM MICHIGAN

Thank you, Mr. Chairman.

The intent behind H.R. 4231 is a good one: to coordinate marine and Great Lakes research to avoid duplication and waste.

I am afraid, though, that the enactment of this bill will only increase duplication and waste. We cannot ignore the excellent work already being conducted on a regional level through the National Sea Grant College Program, and I believe that every research and coordination activity identified in this bill is already being accomplished or could easily be accomplished by Sea Grant.

In addition, the bill also fails to recognize NOAA's premiere role in conducting research activities in the marine and Great Lakes environment. H.R. 4231 does not consider the role of NOAA's new Chief Scientist, and the work of the National Marine Fisheries Service Laboratories, the Office of Oceanography and Marine Assessments, the Office of Protected Species and Habitat Conservation, and the Office of Ocean and Coastal Resource Management in overseeing the Coastal Zone Management program. Most importantly, the bill does not adequately recognize the work of NOAA's National Ocean Pollution Planning Office, which produces a comprehensive, long-term report on the marine environment, including budget analyses. Certainly this program represents the "guts" of H.R. 4231.

Creating a new marine research regime may only duplicate these existing programs, and while I applaud increasing funds for marine research, I question the need to expend millions of dollars to fund a new bureaucracy. Perhaps it would be best to concentrate our funds in these existing marine and Great Lakes research programs, and enhance the coordination among the programs to ensure that national priorities are being addressed. Or, perhaps we should consider consolidation of certain functions if organizational changes are contemplated. I have introduced a bill, H.R. 3299, which would consolidate many maritime functions in a new Federal Maritime Administration. Under this proposal certain NOAA functions would be transferred to this new agency along with Coast Guard assets. As all of you may know, under Section 94 of Title 14, the Coast Guard is directed to conduct oceanographic research as may be in the national interest. My only point is that organizational structure is a complex issue which should be carefully considered and that perhaps we should look within before we create something new.

Finally, I also note that the proposals to be funded under this bill will not be subject to peer review to ensure scientific merit and feasibility. This is a grave oversight, which may result in proposals of questionable utility and scientific quality.

Thank you.

Mr. LOWRY. I'd like to ask unanimous consent that my full statement be entered into the record.

[The opening statement of Mr. Lowry follows:]

STATEMENT BY HON. MIKE LOWRY, CHAIRMAN, SUBCOMMITTEE ON OCEANOGRAPHY

Today the Subcommittee on Fisheries and Wildlife Conservation and the Environment will hear testimony regarding H.R. 4231, the Marine Research Act of 1988, which amends the marine Protection, Research and Sanctuaries Act to establish regional marine research centers around the country.

First, I would like to commend Mr. Brennan for the leadership he has demonstrated in introducing this legislation which addresses an issue which is increasingly important to all of us—the problem of coastal and nearshore pollution. Mr. Brennan's bill would establish new regional centers around the country to focus marine research efforts on particular waterbodies. Given our subcommittee's continuing series of hearings on the general issue of coastal pollution, and given the recent OTA Report which strongly recommended a waterbody-by-waterbody type of approach for cleaning up our nation's estuaries and coastal areas, I understand the rationale contained in this legislation for a regional marine center type of approach. In fact, I understand that the Chairperson of the Puget Sound Water Quality Authority has submitted testimony in the Senate in strong support of this legislation as a means for more systematic research and monitoring of Puget Sound cleanup efforts.

Finally, I would like to applaud Senator Mitchell, who is with us today, for his efforts to move similar legislation in the Senate, and for his leadership in addressing this serious problem of coastal pollution. The health of our nation's waterbodies is of critical importance, and the legislation introduced by the gentlemen from the State of Maine provides an important step in addressing this critical issue.

I will now defer to Mr. Shumway, our ranking minority member, for a statement at this time.

Mr. LOWRY. Senator Mitchell, thank you very much for joining us today, and thank you for your longtime leadership on this issue.

And if you would just proceed ahead as you would care to, with your testimony. Your prepared statement will be inserted immediately following your oral presentation.

STATEMENT OF HON. GEORGE J. MITCHELL, A U.S. SENATOR FROM MAINE

Senator MITCHELL. Thank you very much, Mr. Chairman.

I appreciate the opportunity to be here with you today. I congratulate you and Chairman Studds for your continuing leadership in focusing public attention on marine issues generally, and specifically on marine environmental issues. I express my appreciation to Congressman Brennan, my colleague, the former Governor of Maine—as an aside to you and Chairman Studds, I have a very great interest in Congressman Brennan's future. Seventeen years ago when I was a young struggling lawyer in Portland, Maine, then District Attorney Brennan hired me as an Assistant District Attorney. Nine years after that, when my political career was flagging, then Governor Brennan, appointed me to the Senate. And so who knows what he can do for me in the future——

[Laughter.]

Senator MITCHELL [continuing]. And I'm pleased to join with him in this effort. He's been of invaluable help on this legislation.

Mr. Chairman, members of the committee, reports of environmental problems in marine waters have become increasingly frequent. We know of beach closings in New Jersey, heavy pollution in Boston Harbor, a large dead zone in the Gulf of Mexico, closing of shellfish areas, high levels of toxics in Puget Sound, and the death of dolphins in the mid-Atlantic.

Over the past several months the Senate Subcommittee on Environmental Protection, which I Chair, has held a series of hearings to review environmental trends and conditions in marine and coastal waters around the Nation. Witnesses at the hearings agreed that our coastal waters face significant environmental problems. The Congressional Office of Technology Assessment concluded that in the absence of additional measures to protect our marine waters, the next few decades will witness new or continued degradation of many coastal waters around the Country.

The Marine Research Act, which Congressman Brennan and I introduced earlier this year, is intended to expand and strengthen research and assessment of marine and coastal waters. A better marine research program will help us identify and prevent threats to the marine environment before they grow to be unmanageable and costly problems.

As you know, the bill provides general authority to establish 10 regional marine research programs. The basic objective of the pro-

gram will be to provide a regional focus for planning, coordinating, and conducting marine scientific research. The programs will be developed by the existing Marine Research Institutions in each region, including universities, State agencies, and private laboratories.

A key element of the bill is a provision for a three-year research plan, which will set out the goals and priorities for research and monitoring in the marine and coastal waters of each region. Regional research plans will address projects ranging from basic oceanographic research to more specific applied research issues.

I'm pleased to report that the Full Senate Environment and Public Works Committee unanimously reported the bill out on June 23, just a few days ago. In marking up the bill, we made every effort to respond to the comments and suggestions of witnesses who testified at our hearings on it. Several key changes were adopted during the markup process. The most important one was that the role of the Sea Grant Program in the regional marine research effort is expanded and strengthened in several ways. Sea Grant State Program Directors will take the lead in the early development of marine research programs. And Sea Grant State Program Directors will form the core of the regional board of directors, which will manage the regional program on an on-going basis.

Another change shifts the leadership of the Federal Board from the EPA to NOAA. This will give NOAA a clear and primary role in oversight of the research program. This legislation has evolved, and I believe improved, over the past several months. But the basic goals are essentially unchanged. And let me briefly review them before concluding.

The bill is intended to strengthen marine research programs rather than add to any existing regulatory authority. By improving research and building our knowledge of the marine environment, we will take a significant step toward protecting this resource and preventing the development of major, very costly, pollution problems.

A major objective of the bill is improved planning and coordination of such projects. This will help avoid duplication of research, focus limited funds on the most crucial projects, and generally improve the effectiveness and efficiency of marine research efforts.

And third, the bill calls for an increase in marine research at the regional level, and addresses issues common to an overall marine ecosystem.

Now, Mr. Chairman, before concluding, you should be aware that the Administration witnesses who will testify shortly, do not share my enthusiasm for this bill. In testifying before my Subcommittee on Environmental Protection, Administration witnesses opposed the bill on the grounds of cost and because existing agencies already have the authority to carry out similar activities. With regard to the question of cost, I urge you to view this legislation in the context of the broader marine research program. While there is growing evidence of threats to the environmental quality of marine resources, overall funding for marine research has declined by about one-third since 1982.

And if there's one thing we've learned, Mr. Chairman, with an ounce of prevention, a modest investment in research and preven-

tion, we can save millions of dollars to prevent another Chesapeake Bay, another Boston Harbor, another Great Lakes, other such serious problems that cost vastly more to correct once the problems come into existence.

And with regard to the charge by the Administration of the overlap with existing programs, let me make two brief points. First, by taking a very broad interpretation of existing law one might, indeed, find statutory authority for some of the activities proposed in this legislation. But the fact is, that the regional research called for in the bill is not now taking place. And is unlikely to take place without a legislative mandate and additional resources.

Second, we've revised the bill to give those agencies with the most closely related programs a clear role in the research program. NOAA will chair the Federal oversight board and is in a position to resolve issues of overlapping authority should any arise. In addition, the Sea Grant State Program Directors will play a lead role in developing and managing the program and can assure the effective coordination of State Sea Grant activities with the overall regional program.

Mr. Chairman, I'd ask unanimous consent that the full text of my statement be placed in the record.

I conclude by thanking you again for permitting me to testify here today, and commending you, Chairman Studds, and Congressman Brennan for the leadership you've shown in this entire area.

Mr. LOWRY. Thank you, Senator, and without objection, the full text of the Senator's statement will be inserted into the record.

[The prepared statement of Senator Mitchell can be found at end of hearing.]

Mr. LOWRY. Thank you, Senator, for your continued leadership on this, and your excellent testimony. If I could ask just one question?

Senator MITCHELL. Yes.

Mr. LOWRY. I know you have some specific ideas regarding funding to meet this objective. Would you care to share any of those ideas with us in this hearing?

Senator MITCHELL. Yes, Mr. Chairman. I will, as soon as I leave here, go back to the Senate where I will introduce legislation to establish a marine research trust fund. All of the witnesses who testified, including former Governor Curtis, who's present today and who will follow me as witness, emphasized the need for a stable source of funding over the long term, particularly where research is necessary. And therefore, what I will propose is to use the anticipated surplus of the current OCS Title III Trust Fund to fund this activity.

As you know, the Coast Guard is seeking to terminate collections on the ground it will reach the maximum level of $200 million in the near future. I'm going to propose that we take funds beyond that to provide for the marine research trust fund to be created by this legislation now under consideration here.

Mr. LOWRY. Thank you, Senator.

Chairman Studds.

Mr. STUDDS. Thank you, Mr. Chairman.

Welcome, Senator, and all the good work you do. I must say, contemplating the fates of former governors of Maine, when one looks

at the fact that one of them is in Castine, and one of them is in Washington, one has to wonder about the uniformity of wisdom that flows with the position. I'll let my colleague over here contemplate that one. Given the option, one wonders, how that could have happened.

Senator, I'm relieved to hear the Administration has serious reservations. If they were enthusiastic, I, myself, would take a second look at your proposition. I was going to ask you a question about the funding and it was asked. I guess we have to move before the Administration does to terminate the collections, I suppose.

Senator MITCHELL. Yes, right.

Mr. STUDDS. We'll take a very quick look at that. I was also going to ask you about—maybe I will still. A little more precision about how you envision the relationship between the new program you propose and the existing Sea Grant Program?

Senator MITCHELL. The Sea Grant Program, as you know, is State based and oriented. This is an attempt to establish a broader regional effort, without duplicating or supplanting the Sea Grant effort. Indeed, it was the concern expressed by many in and supportive of the Sea Grant Program, that led us to make the changes that I suggested earlier.

So it's our view that if we do this on the basis with a regional effort, I think it will enhance the Sea Grant Programs and give them, what I think, is an even greater prominence, and if we can provide the stable long range funding here, I think will result in their expansion and improvement in the future.

Mr. STUDDS. I appreciate that.

I guess my only other comment is, I'm looking at the map here of the regions.

Senator MITCHELL. Yes.

Mr. STUDDS. And I note that Cape Cod is half in the Gulf of Maine, and half in the Greater New York Bight. Now, that will probably be greeted with glee there, because the Cape has seceded from Massachusetts in any event, as you probably know. And this rather formal disassociation of Cape Cod from the Commonwealth of Massachusetts will probably be greeted with some glee there. [Laughter.]

Mr. STUDDS. I don't think that bothers me. I think I see a line going through my house. [Laughter.]

Senator MITCHELL. Mr. Chairman, I think I can speak for Congressman Brennan and I in this case, and say that wherever you want that line, we'll paint it, whichever side of your house you want the line to go by, let us know.

Mr. STUDDS. It depends on the wind direction, as you know.

Senator MITCHELL. Right. [Laughter.]

Mr. STUDDS. I want to thank you for all the work that you've done over the years. Maybe together we can sneak not only this, but a number of things through in the remaining months of this Congress, in spite of some of the powers that be, and in spite of themselves, send this Administration out of office with something resembling a creditable record. Let's see if together we can't do that. We have a lot of work to do, and again, I thank you for all that you have done, and are doing.

Senator MITCHELL. Thank you, Mr. Chairman.

Mr. LOWRY. Congressman Brennan.

Mr. BRENNAN. Just briefly, if I might comment on the observation made by Chairman Studds why one Governor is in Washington, and one Governor is in the beautiful coastal town of Castine. It's clear that Governor Curtis had first choice. [Laughter.]

I do want to commend Senator Mitchell for what would be expected from someone from Maine who's a Senator, superb and cogent testimony on behalf of this bill, and I truly commend you for the outstanding job you've done in getting it through the Senate principal committee. And hopefully we'll have some of that type of success here in the House.

Senator MITCHELL. Thank you very much, Congressman.

Mr. LOWRY. Senator, thank you very much for your time.

Senator MITCHELL. Mr. Chairman, thank you.

Mr. LOWRY. I'd now like to call on the Administration Panel, please. Mr. Alan Thomas, Assistant Administrator, Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration; Mr. Tudor Davies, Director, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency.

Mr. Thomas and Mr. Davis, thank you again for coming and joining in the hearing today. Mr. Thomas do you care to go first, or Mr. Davies; how did you have it planned?

Mr. THOMAS. I'll go first.

Mr. LOWRY. Thank you. Your prepared statements will be inserted immediately following your oral presentations.

STATEMENT OF DR. ALAN R. THOMAS, DEPUTY ASSISTANT ADMINISTRATOR FOR OCEANIC AND ATMOSPHERIC RESEARCH, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Dr. THOMAS. Mr. Chairman and Members of the Subcommittee, I'd like to thank you for the opportunity to present the views of the Department of Commerce on H.R. 4231, the Marine Research Act of 1988.

I might mention that my testimony addresses the bill that was originally introduced. We have testified to this subcommittee and others, on the fact that we recognize the serious problems in the marine and near-shore environment, including loss and modification of habitat, toxic contamination, eutrophication, and declining economic and ecological productivity.

To this end, NOAA continues to plan and conduct programs to improve our understanding of, and ability to predict both natural changes and human impacts on the coastal ocean environment, and on the productivity of the Nation's fisheries.

While we view the underlying objective of H.R. 4231 as meritorious, the Department of Commerce opposes the bill on three counts. First, as presently framed, H.R. 4231 would duplicate functions and organizations established both within NOAA, as well as in other Federal agencies.

Second, we believe the administrative structure proposed by the bill would be burdensome and would result in an ordinate portion of appropriated funds being diverted for expenses that are not directly related to research.

And finally, we believe the complexity and the large number of participants in a formal planning process may well lead to less cohesive coastal strategy than is envisioned.

I'd like to briefly address the three items.

First, NOAA, as well as other agencies such as the U.S. Geological Survey, and the Environmental Protection Agency, conduct research that is central to the goals of H.R. 4231. These agencies take a national approach, yet each region is served by a problem focused approach. H.R. 4231 proposes another suite of regional coordination mechanisons that we believe, by being fixed and inconsistent with current regional management structures, will cause problems.

What may make a logical regional grouping for coping with one issue, such as the red tide, may not be appropriate for another such as toxic pollution research. We believe the research should be geared to improving our understanding of how the ocean works and to providing information on the most important problems. This can only be done if the geographical focus on the research is tailored to suit the problem being addressed.

Second, with regard to the Marine Research Coordination Board, which would be set up by the legislation, as a central national office responsible for administering the activities, we believe that it would overlap functionally and in membership with the National Ocean Pollution Planning Board, this latter group being established in NOAA by the National Ocean Pollution Planning Act of 1978. The proposed subsection 404(d) identifies twelve areas of investigation within the purview of the proposed board. Ten of these are already within the purview of National Ocean Pollution Planning Board. Also there is significant overlap between the representatives from Federal agencies on the proposed board and those on the current Ocean Pollution Planning Board.

In regard to overhead costs, H.R. 4231 also calls for the creation of separate boards for each region to administer the conduct of research and interpretive activities. Each regional board is empowered to hire staff, contract for services and purchase equipment. These administrative costs could total several million dollars per year in direct support, plus costs associated with volunteer services in advisory and review committees, which is normally associated with research programs. We believe that existing program capabilities could be used more efficiently and less expensively to administer and conduct research without diminishing the quality of the resulting science, to compile the reports, and to complete other related activities specified in H.R. 4231.

On the third issue of fractionizing the research effort, NOAA and EPA have worked together successfully for a number of years on a wide range of activities directed to protection and preservation of marine and near-shore environment. NOAA has provided the scientific information and support, and EPA has had the leading role in regulatory, enforcement and spill response efforts. As introduced, H.R. 4231 would make EPA responsible for managing research programs and facilities which overlap with existing NOAA programs and facilities. The result would be to confuse research responsibilities and create conflicts which do not now exist.

Mr. Chairman, NOAA presently serves as a coordinating link among many Federal research programs and resource managers,

and regulatory agencies. When the need indicates, NOAA, in conjunction with other agencies, has used its broad authorities to establish appropriate programs and take necessary action. NOAA intends to continue its role as the Nation's ocean and science agency, furnishing EPA and other regulatory groups with the environmental information required for the development of sound ocean policy and marine resource management strategies.

In conclusion, we are concerned about the range of problems in the marine and near-shore environment, but we do not believe that H.R. 4231, as presently written, is the answer. A better approach would be to utilize existing programs and authorities, including systems for planning and conducting research, and put priority on identifying the critical information needs within the Nation's oceanic and coastal waters. This approach, as opposed to the approach of H.R. 4231, we believe, will best address nationally significant coastal degradation problems in a fiscally responsible manner.

Thank you, Mr. Chairman. This concludes my statement.

[The prepared statement of Dr. Thomas can be found attend of hearing.]

Mr. LOWRY. Thank you, Dr. Thomas, for your statement.

Mr. Davies, if you'd care to go ahead, please.

STATEMENT OF TUDOR T. DAVIES, DIRECTOR, OFFICE OF MARINE AND ESTUARINE PROTECTION, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. DAVIES. Thank you.

I'm Tudor Davies. I'm the Director of the Office of Marine and Estuarine Protection of the EPA.

And over the last few months, representatives of EPA have appeared before the relevant House and Senate subcommittees to testify about the importance of our estuarine and near-coastal waters and about our activities in seeking to protect and restore these waters. We share your concerns over the state of our estuarine waters, and we believe that research and monitoring are very important to protect and maintain the quality of these environments. Our estuaries and coastal waters are invaluable national assets, some of which are threatened by pollutant loadings, population growth and population pressures, and resource depletion. And we welcome the attention you have paid in the Congress to these coastal waters over the last period, and we look forward to you developing a reasoned and coherent package of responses to these.

EPA has several comprehensive programs which seek to protect and restore our coastal and marine resources, which are ongoing at EPA. The National Estuary Program is an example of a geographic/site-specific approach to managing waterbodies. And there are three characteristics to this. We target a basin-wide assessment of problems and causes. We integrate the use of available regulatory tools and cleanup techniques to address point and nonpoint source pollution, land management, and coastal resource protection. And we employ the concept of collaborative problem solving between the stake holders in that system.

There are six current estuaries in the NEP. We also have a near-coastal water initiative that Mr. Thomas began, which was an

effort to develop a 10 to 15 year strategic plan for EPA to improve its management of near-coastal waters. And it includes applying a range of tools to address environmental management. And in addition, we have intensified our efforts within our own research laboratories.

We believe that well conceived and executed research and monitoring activities are especially important when dealing with such complex and variable environments as our coastal waters. In order to develop effective measures to protect these resources, it is first necessary to identify and understand the scope, the cause, and the source of the problem. Research and monitoring efforts which are targeted play a vital role in formulating effective strategies to alleviate the environmental problems.

As I testified before the Senate recently on the marine research legislation sponsored by Senator Mitchell, S. 2068, EPA opposes the establishment of the regional marine research centers. Likewise, H.R. 4231 also would duplicate existing Federal and State programs and establish a cumbersome and costly administrative structure.

EPA and NOAA recognize the need for comprehensive marine research and monitoring programs. And I believe that at present there are strong technical capabilities in Federal, State and private institutions for conducting coordinated, region-specific marine research and monitoring. Coordination among Federal, State and private institutions in the marine environment is improving. Also, EPA and NOAA are presently working together to integrate the National Estuary Program and the Coastal Zone Management Programs in areas where they complement one another, and also in assisting States in managing critical coastal issues. Superimposing the proposed management structure over existing programs is unnecessary.

Also, perhaps on a personal note, it is not only critical that research needs, goals and priorities in the coastal and marine environment be identified, but that the research programs be held accountable to answer priority management questions. H.R. 4231 authorizes new money for marine research, but does not adequately address this concern. Evaluation of how research proposals answer these questions must be an integral component of a comprehensive research program to ensure that the results will be of actual benefit to the coastal and marine environment. This bill does not include criteria which will systematically assess how a research proposal addresses priority management questions. This is important not only in the treatment, but in the prevention of environmental degradation in our coastal and marine waters. I expect that the result of your hearings this year and the public concern about the protection of coastal waters from degradation will allow the development of a comprehensive legislative response to these issues.

And I thank you for this opportunity.

[The prepared statement of Mr. Davies can be found at end of hearing.]

Mr. LOWRY. Thank you, Mr. Davies, for your time also.

Congressman Brennan, questions for the panel?

Mr. BRENNAN. Thank you, Mr. Chairman.

Last year, the Office of Technology Assessment released a report entitled, Waste in the Marine Environment. That report concluded that the health of the Nation's marine environment is declining or threatened and predicted continued degradation in the absence of additional measures. And we've heard earlier testimony from Senator Mitchell that there's been a decline in Federally funded marine research over the past six years.

Are you satisfied, in view of that, that the present level of funding for research in these areas is adequate to assess the threat that's been described to marine environment?

Mr. DAVIES. No, sir, I am not satisfied with the level of research funding, and that's perhaps a personal statement rather than an Administration statement.

I am concerned, as I raised in my testimony, that we hold the research programs accountable to management needs. And I am concerned that in this bill that accountability is not there, that this is a research program that produces basic research which we need, and perhaps would be better placed within NSF. I am concerned that there is not sufficient input from environmental managers who can define the questions to which the research should respond.

Mr. BRENNAN. With respect to NOPPA and the fact that, or allegation, that this bill may be duplicative, isn't it true that NOPPA only applies to Federally supported research with no affect on the coordination at the regional level, that it just confines itself to Federally supported research?

Dr. THOMAS. The ocean pollution?

Mr. BRENNAN. Yes.

Dr. THOMAS. Yes, it sets out priorities for marine research as viewed by the Federal agencies. That is true.

Mr. BRENNAN. So we really don't take advantage of some of the capacity, the capability, and the expertise at the regional level that's not Federally supported?

Dr. THOMAS. The Federal Government supports a lot of research through universities, that you can ascribe as being regional or State specific. And that is taken into account in setting the priorities because programs, such as the Sea Grant Program, do provide input to the development of the national plan.

Mr. BRENNAN. But the present set-up really doesn't take advantage of the capability. Wouldn't this bill, in effect, compliment what's being done by the Federal Government?

Dr. THOMAS. Well, I think the point we've tried to make is that it may compliment in some instances, but it produces a very large administrative overhead. There are activities in H.R. 4231 that are trying to do the same types of thing already in existence. And that's, I think, one of the major criticisms that I've given in my testimony.

Mr. BRENNAN. But wouldn't it be a fair statement to say it doesn't duplicate it, it more compliments than duplacates?

Dr. THOMAS. The bill, as written, I believe duplicates, yes.

Mr. LOWRY. Thank you, Congressman.

The gentleman from South Carolina?

Mr. TALLON. I have no questions.

Mr. LOWRY. The gentleman from Maryland?

Mr. DYSON. Just a quick question. What are the priorities? I'm referring to the question of Mr. Brennan.

Dr. THOMAS. Right. At the level of trying to identify priorities, the Ocean Pollution Planning Act is a mechanism for identifying many of the priorities from the Federal agencies and indirectly from the users in the States and regions that are there, the research priorities, what's the most important problem that we should be focusing on. That's one of the major functions of the central pollution planning board. I'm not saying that there's a one-to-one duplication. I'm saying that there are many areas of duplication, and if you go through the particular scientific areas the bill is supposed to look at, there's a large number where both boards would have responsibility for saying what are the priorities for research. That's one area.

In the case of the regional program, we do have activities ongoing today, in NOAA. We have a number of activities in which, whether it's some of our monitoring activities or things like Sea Grant in which we are focusing on the same kinds of problems that these boards would be given the authority to administer.

Mr. DYSON. Thank you, Mr. Chairman.

Mr. LOWRY. Thank you.

I have a note here, if I could just ask, that NOPPA reports that the Federal ocean pollution research has declined from $145 million in 1982 to $101 million in 1988, $44 million, a significant decline. Why doesn't Congressman Brennan's, Senator Mitchell's and Congresswoman Schneider's, and the other people that are working on this issue acts of coordination help in planning this fairly significant reduction in Federal dollars for ocean pollution research? It seems to me that it is really, you know, a duplicating what? I mean, there's been a pretty significant cut. That's a what, 30 percent cut?

Dr. THOMAS. I'm not sure I can give the answer to that one. You know a number of the issues associated with NOAA and its marine research programs probably better than I do. And so I don't know the basis of—I haven't looked at those numbers. One difference is there's a major difference between the Administration's request and the Congressional appropriation, for example.

Mr. LOWRY. We usually raise it.

Any further questions to the panel?

[No response.]

Mr. LOWRY. Gentlemen, thank you very much for taking your time to join us today. Thank you.

Our last panel will be Mr. Kenneth Curtis, President, Maine Maritime Academy; Mr. Chuck Fox, Environmental Policy Institute; and Ms. Boyce Thorne Miller, staff assistant, The Oceanic Society.

I'd like to thank the three individuals on this panel for taking their time to join the committee today. Mr. Curtis, if you would just proceed ahead, please. Your prepared statements will be inserted immediately following your oral presentations.

STATEMENT OF KENNETH CURTIS, PRESIDENT, MAINE MARITIME ACADEMY, REPRESENTING THE ASSOCIATION FOR RESEARCH ON THE GULF OF MAINE

Mr. CURTIS. Thank you.

Thank you Chairman Lowry, and my good friend, Congressman Brennan and members of the committee. I'd like to thank you very much for inviting me here and giving me the privilege to testify in favor of H.R. 4231.

I think one of the satisfying aspects of public life is that, although the capacities may change, you find allies still working on similar causes. Joe Brennan served as a legislative leader during my terms as Governor, fighting through environmental legislation, and carried it on as Governor, and now is doing so here in the House, and inviting me down to testify in the continuation of the things that all of us who come from coastal States perhaps can respect more than others and realize the tremendous assets that we have and what ought to be done.

I have a statement that I would submit for the record, Mr. Chairman, and just summarize it very briefly.

Mr. LOWRY. Without objection, so ordered. Thank you.

Mr. CURTIS. Certainly Maine people are very proud of Senator Mitchell and Congressman Brennan for sponsoring this legislation which they consider to be extremely important, because the people of Maine appreciate the fragility of its rich natural resources and take great pride in the fact that their State is a leader in strong environmental legislation.

And in spite of all that has been accomplished since those great days in the 1960's when environmental legislation was passing in the Senate with zero negative votes, and had the support of the American people, Maine people are fearful today of the stress that the present rate of growth is placing on our coastal waters and beyond. I don't know what's happening in your States, but in Maine coastal town after coastal town are passing moratoriums against further growth because they simply do not know how to cope with the rapid growth along their coast. Now, although much of my testimony concerns the Gulf of Maine, which is familiar water, certainly to me, I also recognize that it's not a problem unique to Maine.

For the coastal waters of the Atlantic, Pacific, and Gulf Coasts have for centuries been of immense value to this Country. As once isolated problems are beginning to attract public attention, our present scientific knowledge of the Gulf of Maine is woefully inadequate to wisely manage this resource. Much of our current research activities seem to be directed toward specific problems, with less broadly defined objectives. And while these efforts certainly need to continue, they contribute little towards the understanding of our total ecosystem.

The need, therefore, for coordinated research plans which have been carefully thought through and effected at the local level, argues for the concept of independent regional research centers. For no mechanism presently exists that has the capability to coordinate Federal research activities with those of the State organizations and private institutions. So a system of independent re-

search centers is the only realistic vehicle to develop an overall long range coordinated research plan.

And also, without sounding overly critical, experience tells me that the current nature of existing Governmental and private entities is one of being underfunded and over taxed by administrative demands leaving fewer and fewer resources to apply to the long range coordinated planning and to research itself. So no one would disagree that wise management and conservation measures are a necessity if these coastal waters are to retain their value for future generations.

It is unfortunate that in all too many instances the quality of scientific information runs far behind the pressures being placed upon these waters. At the moment we're very fortunate that the majority of our coastal seas are basically healthy. But without foresight and appropriate measures, their quality will deteriorate and the cost of restoration, if scientifically possible, will be staggering.

And there are already warning signs in the Gulf of Maine. In testimony before the Senate subcommittee on September 8th, 1987, one of our leading oceanographers, Dr. Charlie Yentch, warned

growth along the coast, red tide outbreaks, drastic changes in fish abundance, toxic materials, acid rain, acid fog, and so on.

The clearest dangers that any Government sponsored organization faces, are top heavy administrative costs, and potential duplication of existing programs. But the Marine Research Act of 1988 has been created to address exactly those concerns.

Only one-sixth of the $3 million that would come to the Gulf of Maine would be spent on administration, while the remaining amount would have to go for research and monitoring. This bill also recognizes that coastal estuaries with their related ecosystems differ dramatically from region to region. It also recognizes that local import is essential. State government, State legislatures, and local public support must be added to any Federal initiative if we are to be successful.

The Gulf of Maine is unique to many coastal regions in that it also needs to coordinate efforts with our Canadian neighbors who share our parts of this common resource.

The Marine Research Act also would support and coordinate basic and applied research. A good example of coordination is the Great Lakes Water Quality Agreement, which was just extended, I believe, for the third time since it's creation. This agreement created a small office under the United States Canadian Joint Commission to coordinate State, Federal and Canadian efforts in the massive effort to clean up the Great Lakes. It drew upon State and provincial and Federal agencies to help in that effort. And I believe results would show that it's been highly successful.

So, while in the past and the resiliency of our coastal ecosystem have been forgiving, I think we must face up to growing evidence that the future will not be so forgiving. We simply should not add irreversible environmental damage in our coastal waters to the many, many other debts that we are passing on, this generation is passing on, to future generations.

Thank you very much, and I'll be glad to try to answer any questions you might have.

[The prepared statement of Mr. Curtis can be found at end of hearing.]

Mr. LOWRY. Mr. Curtis, thank you very much.

Ms. Miller.

STATEMENT OF BOYCE THORNE MILLER, STAFF ASSISTANT, THE OCEANIC SOCIETY

Ms. MILLER. Thank you, Chairman Lowry.

I am Boyce Thorne Miller, staff scientist of the Oceanic Society. I appreciate the opportunity to testify today at this hearing as your subcommittees continue to examine the seriousness and extent of threats to the environmental quality of marine and near-coastal waters. Research is an essential ingredient to our collective efforts to protect ocean and coastal resources. Recognizing this, the proposed Marine Research Act of 1988 provides an important and appropriate governmental response which the Oceanic Society supports.

There is general agreement that research and management efforts to date have not been effective in reversing the tide of degradation in marine and coastal waters. This concern has been expressed at oversight and legislative hearings in the House and Senate, in governmental studies from OTA, EPA and NOAA, and in reports issued by consortia of environmental groups. Time is closing in at the oceans' edges, and we need better answers if we are to prevent further damage. To help accomplish this goal, in-depth research is needed which will enable us to better comprehend and predict system-wide responses to pollution.

Many scientists have called for a regional approach to coastal research and regulation. There are at least two good reasons for this: One, ecological systems are best studied and understood with respect to biogeographic boundaries, not political boundaries; and, two, there are regional differences in the human activities which most threaten marine systems.

In order for H.R. 4231 to succeed at its maximum potential it is imperative that the regional aspect be kept as strong as possible. Given the prevailing mindset of the Federal agencies involved, by which they agree on the one hand that efforts to date have been ineffective in stopping or even slowing the degradation of the marine environment but insist on the other hand that they are currently doing all that needs to be done, and in fact, should be spending less doing it—given this mindset, we believe that a new approach is needed. We need to address the coastal pollution crisis with programs which are answerable to regional marine systems in distress, not to the vagaries of national political climates.

We support the concept put forth in the Marine Research Act, by which the regional centers would be guaranteed the power to set their own agendas, agendas that are likely to differ among the regions and vary from national agendas. The Federal Board should retain narrowly circumscribed powers of review and approval. In this regard, we do not believe that it is necessary or desirable for the Board to prescribe stringent criteria, as this would tend to direct research programs toward a national agenda rather than the desired unique regional agendas.

While supporting the basic concept and purposes of H.R. 4231, we would like to recommend three changes. First, in order to ensure the highest possible quality of research under this Act, we would like to see a system of external peer review of individual research grant proposals. Second, we suggest strengthening the framework for interfacing among scientists, policy makers and the public. This could be done by including a forum for direct exchange between the researchers and interest groups who are trying to utilize scientific information in addressing environmental policy and regulatory issues. Third, we believe the funding levels proposed for this legislation are inadequate to support effective programs of both research and monitoring. Accordingly, the authorized funding level should be increased significantly.

Finally, in addition to these more specific concerns, it is our hope that research proposed under H.R. 4131 will take deeper ocean concerns into consideration. Our inadequate understanding of oceanic processes and impacts of human activities in the deeper ocean are cause for caution. Given the difficulties of responding to crisis situations in smaller, estuarine systems, the problem of protecting the open ocean becomes orders of magnitude more serious if we wait until similar crisis situations become apparent.

The Marine Research Act offers a unique and crucial opportunity to respond to the rising crisis in our near-coastal and off-shore waters by coordinating marine research efforts on a regional scale. The Oceanic Society appreciates the leadership role your subcommittees have taken by convening this hearing on H.R. 4231.

Again, thank you for the opportunity to participate in today's hearings. I would be happy to answer any questions that you might have.

[The prepared statement of Ms. Miller can be found at end of hearing.]

Mr. LOWRY. Thank you, Ms. Miller.

Mr. Fox.

STATEMENT OF CHARLES FOX, DIRECTOR, COASTAL PROTECTION PROJECT, ENVIRONMENTAL POLICY INSTITUTE

Mr. Fox. Thank you, Mr. Chairman.

My name is Charles Fox and I'm the Director of the Coastal Protection Project for the Environmental Policy Institute here in Washington. We have been active on a range of coastal issues for over a decade, including in-depth work on Chesapeake Bay for almost five years. Thank you for the invitation to appear here today.

At the onset it is quite refreshing to know that we do not have to explain the scope and extent of our Nation's coastal crisis. This committee, more than any committee in Congress, is well aware of the growing threats to coastal environments. The extensive series of oversight hearings on this subject have been unmatched by any committee on either side of the Capitol. We would like to extend great credit and praise to the Committee Chairman, Mr. Jones and the Subcommittee Chairmen, Mr. Studds and Mr. Lowry.

Attached to my written statement is testimony we presented to the Senate Environment and Public Works Committee in support

of the companion legislation. That testimony was delivered on behalf of a host of local coastal organizations throughout the Country, including, for example, groups such as the Puget Sound Alliance of Washington, the Conservation Law Foundation of New England, the Westport River Water Shed Alliance of Massachusetts, the North Carolina Coastal Federation, and the Chesapeake Bay Foundation of Maryland, Virginia, and Pennsylvania.

This afternoon my testimony is made only on behalf of the Environmental Policy institute. First I will discuss the pressing needs for the legislation, then, as requested by subcommittee staff, I will offer our comments on the amendments adopted by the other body at a markup last week, and finally, I will conclude with a number of recommendations for amendments.

The growing coastal crisis begs adoption of this bill. The legislation seeks, for the first time, to get more specific answers on the nature and extent of the range of threats to our coastal ecosystems. It seeks to address the fundamental nuts and bolts of coastal ecosystem management. It is an essential and necessary first step in the ultimate challenge that we face, which is to develop a comprehensive strategy for action.

A key strength of the legislation is its regional ecosystem approach to research and monitoring and the fact that it involves Federal and State regulatory agencies in the process. It will force a much needed, specific evaluation of cumulative impacts to coastal ecosystems. For coastal decision makers, it will provide important answers to issues such as water and sediment quality degradation, habitat modifications, and living resource declines.

Most importantly the legislation will promote comprehensive management strategies to address widespread coastal degradation. For example, the quote, unquote, "success story of Chesapeake Bay" was partially a result of such an ecosystem approach involving Federal and State regulatory agencies. From years of studies involving three States' agencies and numerous other Federal agencies, consensus was finally reached on the major threats to the Bay. With agreement on the ecosystem-wide problems, political leadership could take over. Today, this approach is integral to the Environmental Protection Agency's National Estuary Program.

A brief discussion of the amendments adopted by the Senate Environment and Public Works Committee. In general the amendments will serve to streamline implementation by reducing overhead costs and avoiding potential problems associated with duplication of effort. The amendments also strengthen the legislation by providing a more prominent role for the National Sea Grant Program and by establishing a peer review system.

Specific language was added to assure maximum use of existing facilities and administrative resources, particularly those of the National Sea Grant Program. Additional language was included to incorporate the findings and recommendations of the national plan developed pursuant to the Ocean Pollution Planning Act of 1978. In addition, the term "regional centers" was replaced by the term "regional programs" to emphasize that brand new facilities and equipment need not be constructed or purchased.

Importantly, and this is contradictory to the NOAA testimony earlier, the bill retains a cap of $500,000 for the administrative

equipment and facilities costs associated with the operation of regional center. This will assure that scare resources are not wasted on administrative and equipment expenses.

Senate Environment Committee amendments also require that State Sea Grant Program Directors actually prepare the proposals to create the regional programs. Also, under the amendments, the Chairperson of the National Board was changed from a representative of the Environmental Protection Agency to a representative of NOAA.

While overall we believe that the amendments do improve the legislation, we do have a few recommendations for additional amendments for the committee's consideration. First and foremost, we would agree with the Oceanic Society's testimony that funding levels must be increased substantially, and include in that a long-term dedicated source of funds.

Coastal monitoring needs alone for each region would likely exceed the $3 million sum authorized for each region in the proposed legislation. Additional needs for research, information synthesis and communications would be substantial. If the legislation is to successfully achieve its goals, and if State governments and private institutions are to be actively involved and supportive of the program, funding levels must be increased. Roughly, we would estimate that the program authorization should be at least doubled.

In addition to simply increasing the authorization, a long-term dedicated source of funds is necessary. The disappointing funding history of the new Clean Water Act Amendments is a revealing case in point. We would encourage the committee to examine a host of options, including an increase in existing discharge permit fees which in no way cover the real costs of ambient research and monitoring.

The legislation would also benefit with amendment to sharpen the mandate on comprehensive monitoring. Our experience suggests that effective monitoring programs can provide an important early warning system to pinpoint emerging ecosystem threats. Monitoring programs can also stimulate quick actions on a range of priority problems affecting coastal environments.

Finally, we believe that the information synthesis and dissemination roles of the regional programs should be enhanced, including criteria to assure adequate attention to priority management needs. Experience throughout the Country suggests that without sufficient attention and resources devoted to this task, much of the knowledge gained through research and monitoring will be lost.

In conclusion, the ultimate success of this program will be dependent upon the active involvement and support of numerous Federal and State agencies and citizen groups throughout the Country. Substantial leadership on the part of this committee and other members of Congress will be required to meet this challenge. Given pressing national needs, it is our hope that this will occur in a timely fashion.

Thank you very much.

[The prepared statement of Mr. Fox can be found at end of hearing.]

Mr. LOWRY. Thank you, Mr. Fox, also for very helpful testimony. I'd like to thank all three members of the panel for their testimony, and for specific recommendations as we look at markup.

Mr. Curtis, do you see this legislation helping in any way in coordination with our international neighbors?

Mr. CURTIS. Oh, absolutely. And my experience in Canada has been that it's a country that's very conservation minded. We have a lot of fishery disputes over size of fish and various other issues, and I think this kind of legislation would allow us to accelerate in a coordinated way the kind of research that we already cooperate on, but certainly not to the extent that we should.

Mr. LOWRY. Thank you.

Mr. Hertel.

Mr. HERTEL. No questions.

Mr. LOWRY. Mr. Brennan.

Mr. BRENNAN. Thank you, Mr. Chairman.

I, likewise, would like to commend all members of the panel for their superb presentation, and I'd especially like to commend the former Governor of Maine who started the fight to clean up the environment 22 years ago, as the youngest Governor in this Nation. And he's continuing that fight today, and we especially appreciate your insight into Canada, having served as the Ambassador to Canada for several years. But, thank you very much for twice coming to the Hill to work for this legislation. It's something I know that's very close to your heart.

Mr. CURTIS. Thank you, Congressman.

Mr. LOWRY. The gentleman from Delaware.

Mr. CARPER. Thank you, Mr. Chairman. I thank the members of the panel for your presentation.

Let me just ask one question, and any of you are welcome to respond to this question. It sounds like a number of the problems that we face are what are called waterbody specific. For example, we've got among our ecosystems in Delaware, or near Delaware, we have the Delaware Bay, and we have the inland bays of Delaware, and the problems of the ecosystems are really quite different, although they're very close to one another. Would it be perhaps wiser to funnel the research funding on an as-needed basis through the Waterbody Conference process under the National Estuary Program? Would that not make more sense?

Just as a follow-up, what I'm trying to say, to combine maybe the research with efforts to effectively manage endangered waterbodies using a program—not a new program that we'd be creating, but a program that already exists.

Mr. CURTIS. I would start on a couple of points, Congressman, in your question.

It is true that all ecosystems do differ and their needs differ considerably. In Maine, for instance, we already have a consortium of research activities at the university, private and State level. And we've just begun to pull their activities together. And I think what we need, more than anything else, is some independent agency, without a lot of money to spend on administration and infrastructure, but to try to bring all of the private and the various governmental programs together in some kind of an intelligent, coordinated way to move as rapidly as resources will permit.

The problem I have with giving more money to existing agencies is, as I think we're seeing today, as funds have been decreasing for research, I have seen pitiful little reduction in infrastructure of staff. So I think what's been happening, the limited amounts of money we have, have been keeping people on their jobs, but we're seeing less and less activity. So I think the small independent agency with limited resources to coordinate in the best fashion possible whatever resources any of these programs can obtain, would give us the most value for the dollar.

Mr. CARPER. OK.

Ms. Miller.

Ms. MILLER. I don't think that that would be a particularly good idea, because again you would be faced with meeting national criteria and national priorities; and the real advantage to this particular Act is that it allows the different regions to focus on what is most important for them. Those are really different concerns from region to region.

Admittedly, within each region you also have different concerns from waterbody to waterbody, but they tend to be more related regionally than nationally. A program with national priorities does not adequately address all regional needs.

Mr. CARPER. OK.

Mr. Fox.

Mr. FOX. Congressman, in many ways when I was reviewing this legislation, its similarities to the National Estuary Program were the most intriguing in the sense of bringing together various interests to come up with a research and monitoring program, and ultimately, you know, implement a long-term plan for research and monitoring program.

There is a distinction, clearly, between the estuary program in that its goals are to come up with action plans to cleanup, so to speak, some of these bays and estuaries. And this legislation proposes simply to establish research and monitoring programs. As far as a long-term vehicle to accomplish this, I think the National Estuary Program has got severe limitations. And I would liken it to a pilot program to kind of learn what are some of the problems our coastal environments are facing, and would see that this research program separately is probably the better way to approach it with the National Estuary Program as a model.

As this committee has learned, the problems of our coastal environments are widespread. It's beyond simply Delaware Bay, Chesapeake Bay, it's everywhere in between. And I think ultimately the answer is not going to be a series of regional efforts, but in fact some national comprehensive attack on the problem.

Mr. CARPER. Thank you.

Mr. LOWRY. Ms. Thorne Miller, did we shorten your name too far?

Ms. MILLER. No, this is fine.

Mr. LOWRY. OK.

To both Mr. Fox and Ms. Miller, the question of whether specific criteria should be in the legislation or in the research plan. And Mr. Fox, if you'd care to go first, just briefly on that, and then Ms. Miller.

Mr. Fox. There is, clearly, a disagreement that you picked up between us on this matter.

I feel very strongly, and I think share the testimony of EPA on this one, that criteria should be established at the national level. Criteria—the value of that is to make sure that these regional centers focus on priority management needs. And we're not doing research and monitoring solely for the sake of enhancing our understanding, although obviously that's important. It's a matter, in my mind, of making this legislation much more cost effective.

I don't think by simply putting the notion that the research and monitoring shall focus on priority management needs, that in any way we are cutting back on the flexibility of the regional centers to pick their own agenda.

Mr. LOWRY. Thank you, Mr. Fox.

Ms. Miller.

Ms. MILLER. I would just say in response to that, that I believe that priority management needs are best defined by the regions themselves, and all of the actors in that region, be it the policy makers, the scientists themselves, the interested public.

So, again, we would not be in favor of strong criteria in order to encourage unique research proposals at the regional level.

Mr. LOWRY. Thank you.

I'd like to thank the panel very much for their testimony. I'd like to thank all the witnesses today, and the hearing is adjourned.

Thank you very much.

[Whereupon, at 3:12 p.m., the subcommittees were adjourned, to reconvene at the call of the Chair.]

[The following was submitted for the record:]

I

100TH CONGRESS
2D SESSION

H. R. 4231

To amend the Marine Protection, Research, and Sanctuaries Act of 1972 to protect the marine environment through the establishment of regional marine research centers.

IN THE HOUSE OF REPRESENTATIVES

MARCH 23, 1988

Mr. BRENNAN (for himself, Ms. SCHNEIDER, Mr. PICKETT, Mr. HUGHES, Mr. HOWARD, Mr. ROE, and Mr. SCHEUER) introduced the following bill; which was referred jointly to the Committees on Merchant Marine and Fisheries and Science, Space, and Technology

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A BILL

To amend the Marine Protection, Research, and Sanctuaries Act of 1972 to protect the marine environment through the establishment of regional marine research centers.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Marine Research Act of 1988".

SEC. 2. AMENDMENT TO THE MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT OF 1972.

The Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1401 et seq.) is amended by adding at the end the following:

"TITLE IV—REGIONAL MARINE RESEARCH CENTERS

"SEC. 401. FINDINGS.

"The Congress finds the following:

"(1) The marine environment of the United States is a resource of tremendous value.

"(2) The marine environment contains vital and productive natural ecosystems.

"(3) The marine environment supports commercial fisheries with an estimated dockside value of over $2,800,000,000 per year and recreational fisheries with an estimated value of over $7,500,000,000 per year.

"(4) The marine environment supports extensive recreational activities and related support services.

"(5) The protection of the marine environment is essential to ensure continued commercial and recreational activities in the marine environment.

"(6) Recent studies and reports provide evidence of growing threats to the environmental quality and ecological integrity of the marine environment.

"(7) A report by the Congressional Office of Technology Assessment found that the overall environmental quality of the marine environment is declining or threatened.

"(8) Studies by the Environmental Protection Agency and the National Oceanic and Atmospheric Administration have identified unexpectedly high levels of contaminants in a number of coastal areas of the marine environment.

"(9) Expanded and improved research and monitoring of the marine environment are needed to gain a more complete understanding of the marine environment, how it functions, and how human activities are affecting it.

"(10) There is a need to develop marine research programs which take a comprehensive approach to the marine environment.

"(11) There is a need to improve the coordination among marine research programs at the regional level and to provide for long-range planning of research programs.

"(12) Significant improvements in marine research can be accomplished through the expansion and support of marine research at the regional level.

"(13) There is a need for sufficient and sustained Federal support of marine research and monitoring to protect the marine environment.

"(14) There is a need for comprehensive and periodic reports to the Congress on—

"(A) conditions and trends in the environmental quality of the marine environment;

"(B) marine research needs;

"(C) marine research programs; and

"(D) developing and implementing programs to protect the marine environment.

"(15) The results of marine research are valuable to developing and implementing programs at the Federal, State, regional, and local levels to protect the marine environment.

"SEC. 402. PURPOSES.

"The purposes of this title are—

"(1) to establish regional marine research centers to protect the marine environment of the United States;

"(2) to provide sufficient and sustained funding for such centers to enable such centers—

"(A) to develop comprehensive, long-range research plans; and

"(B) to coordinate and support marine research and related activities;

"(3) to establish in the Federal Government the capability to provide effective oversight of regional marine research;

"(4) to provide for periodic, comprehensive reports to the Congress concerning conditions and trends in the marine environment, marine research needs, and marine research programs; and

"(5) to assist the Federal Government and State, regional, and local governments in developing and implementing programs to protect the marine environment.

"SEC. 403. DEFINITIONS.

"For purposes of this title—

"(1) the term 'Board' means the Marine Research Coordination Board;

"(2) the term 'center' means a regional marine research center established under section 404(a);

"(3) the term 'Federal agency' means any department, agency, or other instrumentality of the Federal Government, or any independent agency or establishment of the Federal Government, including any Government corporation;

"(4) the term 'local government' means any city, town, borough, county, parish, district, or other public entity that is a political subdivision of a State and is created pursuant to State law; and

"(5) the term 'marine environment' has the meaning given to such term in section 302(3) (16 U.S.C. 1432(3));

"(6) the term 'nonprofit organization' means an organization that—

"(A) is described in section 501(c)(3) of the Internal Revenue Code of 1986 (26 U.S.C. 501(c)(3)); and

"(B) is exempt from taxation under section 501(a) of such Code (26 U.S.C. 501(a));

"(7) the term 'region' means a Marine Research Region established by section 404(h); and

"(8) the term 'State' means one of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Virgin Islands of the United States, American Samoa, Guam, or the Trust Territory of the Pacific Islands (excluding the Commonwealth of the Northern Mariana Islands).

"SEC. 404. REGIONAL MARINE RESEARCH CENTERS.

"(a) ESTABLISHMENT.—In each Marine Research Region for which the Marine Research Coordination Board approves a proposal submitted under subsection (e)(1)(A), the Board shall establish a regional marine research center pursuant to such proposal.

"(b) DUTIES.—The board of directors of a regional marine research center shall—

"(1) set overall goals for an integrated, long-term program—

"(A) of marine research in the region involved; and

"(B) for monitoring the environmental quality of the marine environment in the region involved;

"(2) develop comprehensive, long-range plans which identify the specific needs and priorities for marine research and monitoring activities and projects in the region involved;

"(3) promote coordination of research among State agencies and organizations conducting or supporting marine research in the region involved;

"(4)(A) monitor the environmental quality of the marine environment in the region involved; and

"(B) assess the impact of proposed activities on the environmental quality of such environment;

"(5) provide a forum for review and comment on research plans by affected user and interest groups, including commercial fishermen, other marine industries, and environmental organizations;

"(6) provide a forum for coordinating research among research institutions, with other regions, and with other countries;

"(7) prepare public reports on the environmental quality of the marine environment in the region involved;

"(8) analyze and interpret marine research data and information at the request of State and local governments; and

"(9) make such scientific recommendations to the Federal Government and State and local governments on the design and implementation of programs to address problems concerning the marine environment in the region involved as the board of directors determines to be necessary.

"(c) AUTHORIZED ACTIVITIES.—The board of directors of a regional marine research center may—

"(1) support basic and applied research, investigation, monitoring, and assessment activities—

"(A) concerning the marine environment in the region involved; and

"(B) conducted by research organizations participating in the center;

"(2) conduct and support research, investigation, monitoring, and assessment activities—

"(A) concerning the marine environment in the region involved; and

"(B) in cooperation with Federal agencies, State and local governments, interstate and regional agencies, other public agencies and authorities, nonprofit institutions and organizations, or other persons;

"(3) enter into contracts or cooperative agreements with, and make grants to, research organizations participating in the center, State and local governments, other public agencies or institutions, and nonprofit institutions and organizations for the purpose of carrying out this title;

"(4) collect, and make available through publication or other appropriate means, the results of, and other information pertaining to, marine research conducted in the region involved;

"(5) support the development of effective and practical methods and techniques for the detection and assessment of contamination in the marine environment;

"(6) hire such staff and acquire such equipment as the board of directors of the center determines to be necessary to carry out this title, including research vessels and vessel-related support structures;

"(7)(A) call conferences on regional marine research and assessment issues; and

"(B) give interested persons an opportunity to participate in such conferences;

"(8) support, after consultation with the Department of State, joint marine research projects with foreign countries;

"(9) utilize facilities and personnel of a Federal agency, on a reimbursable basis and with the consent of the head of such agency, including scientific laboratories and research facilities;

"(10) accept, use, and dispose of gifts of services, money, and interests in property; and

"(11) acquire secret processes, inventions, patent applications, patents, licenses, and property rights, by purchase, license, lease, or donation.

"(d) RESEARCH, INVESTIGATION, MONITORING, AND ASSESSMENT.—Research, investigation, monitoring, and assessment activities conducted or supported under paragraph (1) and (2) of subsection (a) may include research, investigation, monitoring, and assessment activities regarding—

"(1) baseline assessments of marine environmental quality, including chemical, physical, and biological indicators of environmental quality;

"(2) basic oceanographic and biological conditions and processes;

"(3) effects or potential effects of contaminants, including nutrients, toxic chemicals, and heavy metals, on the marine environment, including marine and aquatic organisms;

"(4) inventory of pollutant sources and pollutant discharges into the marine environment;

"(5) transport, dispersion, transformation, fate, and effect of contaminants in the marine environment;

"(6) assessment, protection, and restoration of the marine environment;

"(7) methods and techniques for modeling environmental quality conditions and trends;

"(8)(A) methods and techniques for sampling of water, sediment, and aquatic organisms; and

"(B) demonstration of such methods and techniques;

"(9) the effect on human health of contaminants, or combinations of contaminants, that are found in the marine environment;

"(10) assessment of potential effects of major coastal and offshore development projects in the region involved;

"(11) assessment and monitoring of the effects of climate change on marine resources in the region involved; and

"(12) analysis and interpretation of research data for the benefit of environmental protection and resource management agencies of State and local governments in the region involved.

"(e) PROPOSAL FOR THE ESTABLISHMENT OF A CENTER.—(1) The Board shall establish a regional marine research center under section 404(a) in the region involved if—

"(A) the chief executive officers of at least a majority of the States that include a portion of such region jointly submit to the Board a proposal for the establishment of such center; and

"(B) the Board approves such proposal under subsection (f).

"(2) A proposal submitted under paragraph (1)(A) shall—

"(A) identify the goals and objectives of the center;

"(B) identify the research organizations that will participate in the center, including State agencies, research laboratories and organizations, academic institutions, and other organizations;

"(C) provide for the organization of the center, including providing for a board of directors, a executive director, and the hiring of a professional staff;

"(D) describe—

"(i) the research experience, capabilities, and activities of the research organizations that will participate in the center; and

"(ii) how such activities will be coordinated and maintained; and

"(E) provide for a research advisory group that—

"(i) will include representatives from affected user and interest groups, including the commercial fishing industry, other marine industries, and environmental organizations; and

"(ii) will advise the board of directors of the center in the conduct of duties and authorized activities.

"(f) REVIEW.—(1) Not later than ninety days after the receipt of a proposal submitted under subsection (e)(1)(A), the Board shall hold a public hearing in the region involved.

"(2) Not later than one hundred eighty days after the receipt of such proposal, the Board shall approve or disapprove such proposal.

"(3) The Board shall approve such proposal if—

"(A) such proposal—

"(i) provides for the establishment of a board of directors to be composed of representatives of relevant agencies of State and local governments, marine research organizations and institutes, and universities with marine programs in the region involved;

"(ii) provides for coordination and cooperation between the proposed center and relevant agencies of State and local governments, marine research organizations and institutes, and universities with marine programs in the region involved;

"(iii) contains a commitment from the research organizations that will participate in the center to the support and continuation of an effective marine research program; and

"(iv) contains a commitment to establish the Research Advisory Group referred to in subsection (e)(2)(E) and adequate procedures for effective consultation with such group; and

"(B) the Board determines that the center proposed to be established pursuant to such proposal would have—

"(i) the capability in sufficient disciplines to successfully develop a multidisciplinary research program; and

"(ii) sufficient resources, including laboratory, library, computer, and support facilities.

"(4) If the Board disapproves a proposal under paragraph (2), the Board shall notify, in writing, the chief executive officers submitting such proposal of the reasons for such disapproval and shall make such recommendations as the Board determines to be appropriate.

"(g) NONVOTING MEMBERS.—(1) The Administrator of the National Oceanic and Atmospheric Administration and the Administrator of the Environmental Protection Agency may each appoint a representative to a regional center to serve as an nonvoting member of the board of directors of such center.

"(2) To provide for broader international research coordination, the board of directors of the center established in the Tropical Region may appoint representatives from countries in, or adjacent to, the Caribbean Sea as nonvoting members of such board.

"(h) MARINE RESEARCH REGIONS.—There are hereby established the following marine research regions:

"(1) The Gulf of Maine Region, consisting of that portion of the marine environment—

"(A) extending northward from the midpoint of Cape Cod, Massachusetts; and

"(B) located in or adjacent to the States of Maine, New Hampshire, and Massachusetts.

"(2) The Greater New York Bight Region, consisting of that portion of the marine environment—

"(A) extending southward from the midpoint of Cape Cod, Massachusetts to the midpoint of Cape May, New Jersey; and

"(B) located in or adjacent to the States of Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

"(3) The Mid-Atlantic Region, consisting of that portion of the marine environment—

"(A) extending southward from the midpoint of Cape May, New Jersey, to the midpoint of Cape Lookout, North Carolina; and

"(B) located in or adjacent to the States of New Jersey, Delaware, Maryland, Virginia, and North Carolina.

"(4) The South Atlantic Bight Region, consisting of that portion of the marine environment—

"(A) extending southward from the midpoint of Cape Lookout, North Carolina, to the farthest westward extension of the Florida Keys; and

"(B) located in or adjacent to the States of North Carolina, South Carolina, Georgia, and Florida (excluding any portion of the marine environment located in the State of Florida commonly considered to be included in the Gulf of Mexico).

"(5) The Tropical Region, consisting of that portion of the marine environment located in or adjacent to the Commonwealth of Puerto Rico and the Virgin Islands of the United States.

"(6) The Gulf of Mexico Region, consisting of that portion of the marine environment—

"(A) commonly considered the Gulf of Mexico; and

"(B) located in or adjacent to the States of Florida, Alabama, Mississippi, Louisiana, and Texas.

"(7) The Southern California Bight Region, consisting of that portion of the marine environment extending southward from the midpoint of Point Conception, California.

"(8) The North Pacific Region, consisting of that portion of the marine environment—

"(A) extending northward from the midpoint of Point Conception, California; and

"(B) located in or adjacent to the States of California, Oregon, and Washington.

"(9) The Gulf of Alaska and Arctic Seas Region, consisting of that portion of the marine environment located in or adjacent to the State of Alaska.

"(10) The Insular Pacific Region, consisting of that portion of the marine environment located in or adjacent to the State of Hawaii, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territory of the Pacific Islands (excluding the Commonwealth of the Northern Mariana Islands).

"(11) The Great Lakes Region, consisting of that portion of the marine environment—

"(A) commonly considered as the Great Lakes; and

"(B) located in the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.

"SEC. 405. REGIONAL RESEARCH PLANS.

"(a) RESEARCH PLAN REQUIRED.—Not later than one year after the establishment of a regional marine research center under section 404(a), and every three years thereafter, the board of directors of such center shall submit to the Board a marine research plan for the region involved for the three-year period beginning on the date of the submission of such plan.

"(b) CONTENTS OF PLAN.—The plan required by subsection (1) shall include—

"(1) an overview of—

"(A) the current environmental quality of the marine environment of the region involved; and

"(B) expected trends in such environmental quality;

"(2) a description of the research needs, goals, and priorities in the region involved for the ten-year period beginning on the date of the submission of such plan;

"(3) an inventory of all federally-funded projects regarding the marine environment expected to be conducted in the region involved during the three-year period of such plan, including projects funded under—

"(A) this title;

"(B) the National Sea Grant College Program Act;

"(C) section 320 of the Federal Water Pollution Control Act;

"(D) the Fish and Wildlife Act of 1956; and

"(E) the Magnuson Fishery Conservation and Management Act;

"(4) an explanation of the means by which the board of directors will select and supervise projects to be funded under this title—

"(A) to assure effective use of resources; and

"(B) to avoid duplication of effort with projects funded by other sources;

"(5) a description of each project expected to be assisted during the three-year period of such plan using funds provided under section 406, including in such description—

"(A) the identification of the organization, laboratory, or principal investigator responsible for such project;

"(B) an estimate of the budgetary and equipment needs of such project;

"(C) a schedule of major activities of such project;

"(D) the goals of such project; and

"(E) the relationship of such project—

"(i) to the research needs, goals, and priorities described pursuant to paragraph (2); and

"(ii) to other projects identified pursuant to paragraph (3); and

"(6) an inventory of supplies and equipment commonly used for projects in the region involved regarding the marine environment.

"(c) REVIEW.—(1) Not later than ninety days after the receipt of a plan submitted under subsection (a), the Board shall approve or disapprove such proposal.

"(2) The Board shall approve such proposal if the Board determines that such plan satisfies the requirements specified in subsection (b).

"(3) If the Board disapproves a plan under paragraph (1), the Board shall—

"(A) notify, in writing, the board of directors of the center submitting such proposal of the reasons for such disapproval; and

"(B) include in such notification such recommendations as the Board determines to be appropriate.

"(4) In the case of disapproval of a research plan, the board of directors of the center may submit a new research plan in conformity with the requirements of this section.

"SEC. 406. RESEARCH, SUPPORT, AND EQUIPMENT GRANTS.

"(a) SUPPORT GRANTS.—(1) The Board may make, for each fiscal year, grants to support the operation of a regional marine research center established under section 404(a).

"(2) Operational expenses for which a grant made under paragraph (1) may be expended include—

"(A) the cost of facilities, offices, and related equipment for such center;

"(B) the salaries and expenses of the staff of such center and other personnel services;

"(C) reasonable maintenance costs of equipment, including vessels, as determined by the Board; and

"(D) such other expenses as the Board may approve, including the cost of—

"(i) publications;

"(ii) developing research plans pursuant to section 405;

"(iii) meetings of the board of directors of such center; and

"(iv) conducting scientific and related meetings and seminars.

"(3) A center may receive a grant under this subsection if the board of directors of such center submits to the Board an application at such time, in such form, and containing such information and assurances as the Board may require.

"(4) Total grants to a center under this subsection for a fiscal year may not exceed $500,000.

"(b) RESEARCH GRANTS.—(1) The Board may make, for each fiscal year, grants to assist the board of directors of a regional marine research center in implementing for such fiscal year a research plan for the region involved approved under section 405 (excluding the purchase of equipment).

"(2) A center may receive a grant under subsection (b) if the board of directors of such center submits to the Board an application at such time, in such form, and containing such information and assurances as the Board may require.

"(3) Before submitting an application under paragraph (2), the board of directors of the center submitting such application shall give the research advisory group of such center an opportunity to review, and comment on, such application.

"(4) The Board shall—

"(A) promptly review a grant application submitted under paragraph (2);

"(B) consider the comments of the applicable research advisory group in reviewing such application; and

"(C) not later than ninty days after the submission of such application, make a grant under paragraph (1) to the center for which such application is submitted—

"(i) with sums appropriated to carry out this section; and

"(ii) if the Board determines that such application is consistent with the approved research plan.

"(c) EQUIPMENT GRANTS.—(1) The Board may make, for each fiscal year, grants to a regional marine research center, for which a research plan is approved under section 405 for such fiscal year, to assist the board of directors of such center in purchasing equipment necessary to carry out projects described in such plan and funded under subsection (b).

"(2) Equipment that may be purchased using a grant under paragraph (1) includes—

"(A) monitoring and sampling equipment;

"(B) computer hardware or software;

"(C) scientific measurement and analytic equipment; and

"(D) research vessels and related support craft.

"(3) A center may receive a grant under subsection (b) if the board of directors of such center submits to the Board an application at such time, in such form, and containing such information and assurances as the Board may require.

"(4) The Board may not make a grant under paragraph (1) for the purchase of research vessels and related support craft unless the Board—

"(A) consults with the Federal Fleet Coordinating Council and the University Oceanographic Laboratory System (UNOLS) to determine the need for vessels or support craft for the region involved; and

"(B) determines that there are—

"(i) a clearly demonstrated need for the equipment in the region involved to support identified research projects; and

"(ii) adequate provision for maintenance and full utilization of the equipment, including loaning of equipment to organizations participating in another marine research center.

"(5) The board of directors of a center receiving a grant under paragraph (1) shall—

"(A) report annually to the Board on the status and disposition of any equipment purchased using such grant; and

"(B) at least ninety days before any sale of such equipment, give notice of such sale to the Board.

"(d) GRANT LIMITS.—(1) Except as provided in paragraph (2), total grants to a center under this section for a fiscal year may not exceed $3,000,000.

"(2) Total grants under this section to the center established in the Tropical Region may not exceed $1,500,000 for a fiscal year.

"(e) REPORTING.—Not later than ninety days after the end of a fiscal year, the board of directors of a center that received a grant under this section shall submit a report, in such form as the Board may require, to—

"(1) the Board;

"(2) the chief executive officers of the States in the region involved; and

"(3) the research advisory group for the region involved;

describing the accomplishments resulting from such grant.

"SEC. 407. MONITORING AND REGIONAL ASSESSMENT.

"(a) MONITORING AND ASSESSMENT.—The board of directors of each regional marine research center established under section 404(a) and receiving grants under section 406 shall, consistent with the research plan developed under section 405 for the region involved—

"(1) support baseline monitoring of fundamental marine environmental conditions in the region involved, in accordance with criteria, measurement standards, and quality assurance techniques required by the Board; and

"(2) submit to the Board periodic reports on the status of marine environmental quality and marine resources in the region involved.

"(b) REPORT REQUIREMENTS.—(1) The reports required by subsection (a)(2) shall—

"(A) provide an overview of environmental quality in the region involved;

"(B) describe trends in natural resource and environmental quality conditions in the region involved;

"(C) summarize the activities and research projects of the center and identify future needed projects; and

"(D) provide recommendations for improvements in the design or implementation of Federal, State, or local programs for the protection of environmental quality in the region involved.

"(2) The research advisory group for the center involved shall review, and comment on, such report before it is submitted to the Board.

"(3) The reports required by subsection (a)(2) shall be drafted in nontechnical style and shall be made available to the public, as well as to local, State, and Federal agencies. Such reports shall be submitted to the chief executive officers of the States in the region involved.

"(4) The reports required by subsection (a)(2) shall be submitted to the Board on a schedule to be determined by the Board. To the extent practicable, the Board shall provide for reports beginning three years after the date of establishment of each center and every three years thereafter.

"SEC. 408. MARINE RESEARCH COORDINATION BOARD.

"(a) ESTABLISHMENT.—(1) There is hereby established a Marine Research Coordination Board to manage and coordinate the efforts of the regional marine research centers established pursuant to section 404(a).

"(b) MEMBERS.—The Board shall be composed of members appointed by the President as follows:

"(1) A representative of the National Oceanic and Atmospheric Administration.

"(2) A representative of the Environmental Protection Agency.

"(3) A representative of the United States Fish and Wildlife Service.

"(4) A representative of the Minerals Management Service.

"(5) A representative of any other Federal agency that the President determines has significant research or regulatory responsibilities regarding the marine environment.

"(6) The executive director of each regional marine research center established under section 404(a), or the designee of such director.

"(c) CHAIRPERSON.—The representative of the Environmental Protection Agency shall serve as the chairperson of the Board.

"(d) FIRST APPOINTMENTS.—Members of the Board required by subsection (b) to be appointed shall be first appointed not later than 90 days after the date of the enactment of this Act.

"(e) PAY.—Members of the Board shall receive no compensation by reason of their service on the Board.

"(f) QUORUM.—A majority of the members of the Board shall constitute a quorum, but a lesser number of members may hold hearings.

"(g) MEETINGS.—(1) The Board shall meet at the call of the chairperson or a majority of the members.

"(h) BYLAWS AND RULES.—The Board may adopt, amend, and repeal bylaws and rules governing the conduct of the Board in carrying out this title.

"SEC. 409. DUTIES OF THE BOARD.

"The Board shall—

"(1) review, under section 404(f), proposals submitted for the establishment of regional marine research centers;

"(2) establish such centers under section 404(a);

"(3) review, under section 405(c), research plans submitted for such centers; and

"(4) make grants under section 406.

"SEC. 410. EXECUTIVE DIRECTOR, STAFF, AND PERSONNEL OF THE ENVIRONMENTAL PROTECTION AGENCY.

"(a) EXECUTIVE DIRECTOR.—The Board may, without regard to section 5311(b) of title 5, United States Code, appoint an executive director who shall be paid at a rate not to exceed the rate of basic pay payable from time to time for level IV of the Executive Schedule established under section 5315 of such title.

"(b) STAFF.—The Board may appoint and fix the pay of such staff as the Board considers necessary to enable the Commission to carry out its duties.

"(c) PERSONNEL OF THE ENVIRONMENTAL PROTECTION AGENCY.—At the request of the Board, the Administrator of the Environmental Protection Agency may detail, on a reimbursable basis, any of the personnel of such agency to the Board to assist the Board in carrying out the grant program established by section 406.

"SEC. 411. REPORTS.

"Not later than ninty days after the end of a fiscal year, the Board shall submit to the Speaker of the House of Repre-

sentatives and the President pro tempore of the Senate a report describing—

"(1) the environmental quality of the marine environment during such fiscal year; and

"(2) the activities and accomplishments of the regional marine research centers during such fiscal year.

"SEC. 412. AUTHORIZATION OF APPROPRIATIONS.

"There are authorized to be appropriated for each of the fiscal years 1989 through 1993—

"(1) $31,500,000 to carry out sections 404, 405, 406, and 407 of this title; and

"(2) $1,000,000 for the operational expenses of the Board.".

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[STAFF WORKING PAPER]

JUNE 20, 1988

Calendar No.

100TH CONGRESS
2D SESSION

S. 2068

[Report No. 100–]

To amend the Marine Protection, Research and Sanctuaries Act to protect marine and near-shore coastal waters through establishment of regional marine research centers.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 17 (legislative day, FEBRUARY 15), 1988

Mr. MITCHELL (for himself, Mr. CHAFEE, Mr. BENTSEN, Mr. JOHNSTON, Mr. INOUYE, Mr. MOYNIHAN, Mr. SANFORD, Mr. COHEN, Mr. LAUTENBERG, Mr. BRADLEY, Mr. D'AMATO, Mr. MATSUNAGA, Mr. WARNER, Mr. SARBANES, Ms. MIKULSKI, and Mr. GRAHAM) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

JUNE , 1988

Reported by Mr. , with an amendment and an amendment to the title

[Strike out all after the enactng clause and insert the part printed in italic]

A BILL

To amend the Marine Protection, Research and Sanctuaries Act to protect marine and near-shore coastal waters through establishment of regional marine research centers.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. (a) TITLE.—This Act may be cited as the "Marine Research Act of 1988".

(b) TABLE OF CONTENTS.—

Sec. 401 Findings.
Sec. 402 Purpose.
Sec. 403 Definitions.
Sec. 404 General authority.
Sec. 405 Regional research plans.
Sec. 406 Research, support, and equipment grants.
Sec. 407 Monitoring and regional assessment.
Sec. 408 Marine Research Coordination Board.
Sec. 409 Authorizations.

AMENDMENTS TO THE MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

SEC. 2. AMENDMENT.—The Marine Protection, Research and Sanctuaries Act is amended by adding at the end thereof the following new title:

"TITLE IV—REGIONAL MARINE RESEARCH CENTERS

"FINDINGS

"SEC. 401. FINDINGS.—The Congress finds that—

"(1) the Nation's marine and near-shore, coastal waters are a resource of tremendous value;

"(2) marine waters, including estuaries, are vital and productive natural ecosystems;

"(3) marine and near-shore coastal waters support commercial fisheries with an estimated value of over

~~$5,500,000,000 per year, and recreational fisheries with an estimated value of over $7,500,000,000 per year;~~

~~"(4) marine and near-shore coastal waters support extensive recreational activities and related support services;~~

~~"(5) maintenance and protection of the environmental quality of the Nation's marine and near-shore coastal waters is essential to the commercial and recreational activities they support;~~

~~"(6) recent studies and reports provide evidence of growing threats to the environmental quality and ecological integrity of marine and near-shore coastal waters;~~

~~"(7) a report by the Congressional Office of Technology Assessment found that the overall health of coastal waters is declining or threatened;~~

~~"(8) studies by the Environmental Protection Agency and the National Oceanic and Atmospheric Administration have identified unexpectedly high levels of contaminants in a number of coastal areas;~~

~~"(9) expanded and improved research and monitoring of marine and estuarine ecosystems is needed to gain a more complete understanding of these ecosys-~~

~~tems, how they function naturally, and how human activities may be affecting them;~~

~~"(10) ongoing changes in world climate will alter regional weather and oceanic processes in ways which will affect the distribution and abundance of marine organisms;~~

~~"(11) there is a need to develop marine research programs which take a comprehensive approach to marine ecosystems in the various coastal and marine regions of the Nation;~~

~~"(12) there is a need to improve the extent of coordination among various marine research activities at the regional level and provide for long-range planning of research and related projects;~~

~~"(13) significant improvements in marine research can be accomplished through expansion and support of research at the regional level;~~

~~"(14) there is a need for sufficient and sustained Federal support for research and monitoring to protect the Nation's marine and coastal environment;~~

~~"(15) there is a need for comprehensive and periodic reports to the Congress on conditions and trends in marine environmental quality, research needs, and response programs; and~~

"(16) the results of marine and near-shore research are valuable to developing and implementing marine and coastal environmental protection programs at the Federal, State, regional, and local levels.

"PURPOSE

"SEC. 402. PURPOSE.—The purposes of this title are to—

"(1) establish regional marine research centers to protect the Nation's marine environment;

"(2) provide sufficient and sustained funding for these regional centers to develop comprehensive, long-range research plans, and coordinate and support marine research and related activities;

"(3) establish within the Federal Government the capability to provide effective oversight of regional marine research; and

"(4) provide for periodic, comprehensive reports to Congress concerning conditions, trends, research needs, and response programs in the Nation's marine environment.

"DEFINITIONS

"SEC. 403. DEFINITIONS.—For purposes of this title—

"(1) the term 'Board' means the Marine Research Coordination Board established pursuant to section 408 of this title;

"(2) the term 'region' means a Marine Research Region designated in section 404(f) of this title;

"(3) the term 'Federal agency' means any department, agency, or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any Government corporation;

"(4) the term 'local government' means any city, town, borough, county, parish, district, or other public body which is a political subdivision of a State and which is created pursuant to State law; and

"(5) the term 'nonprofit organization' means any organization, association, or institution described in section 501(c)(3) of the Internal Revenue Code of 1954 which is exempt from taxation pursuant to the provisions of section 501(a) of such Code.

"REGIONAL MARINE RESEARCH CENTERS

"SEC. 404. (a) GENERAL AUTHORITY.—There is authorized to be established within each region, as defined under subsection (f), a regional marine research center.

"(b) PURPOSES.—Regional marine research centers established pursuant to this section are intended to—

"(1) set overall goals for an integrated, long-term program of research and monitoring of marine and estaurine environmental quality in the region;

"(2) develop comprehensive, long-range plans which identify the specific needs and priorities of research and monitoring activities and projects;

"(3) assure coordination of research among State agencies and other organizations involved in marine research in the region;

"(4) monitor environmental quality conditions of marine and near-shore coastal waters and assess the impacts of proposed activities in these waters;

"(5) provide a forum for review and comment on research plans from affected user and interest groups, such as commercial fishermen, other marine industries, and environmental organizations; and

"(6) provide a forum for coordinating research among research institutions, with other regions and with neighboring countries; and

"(7) make public reports on the environmental quality conditions in the region; analyze and interpret research data and information at the request of the relevant State and local agencies in the region for their application in environmental protection programs; and make such scientific recommendations to local, State, and Federal agencies on design of effective programs to address identified problems as may be necessary.

"(c) AUTHORITIES.—Each regional marine research center shall be authorized to—

"(1) support basic and applied research, investigations, monitoring, and assessment activities through its member organizations and agencies in the estuarine, near-shore coastal, and offshore environments of the region;

"(2) cooperate with Federal agencies, with States and with local government entities, interstate and regional agencies, other public agencies and authorities, nonprofit institutions and organizations, or other persons, in the preparation and support of marine research in the region;

"(3) enter into contracts, cooperative agreements or grants to member organizations, and to other State and local governmental entities, other public agencies or institutions, and nonprofit institutions and organizations for purposes of carrying out the provisions of this Act;

"(4) collect and make available through publications and other appropriate means, the results of, and other information pertaining to, the research conducted in the region;

"(5) support development of effective and practical methods and techniques for the detection and assessment of contamination in the marine environment;

"(6) hire staff and equip them as may be necessary to carry out the provisions of this Act, including the ownership and operation of research vessels and construction of necessary vessel-related support structures;

"(7) call conferences on regional marine research and assessment issues, giving opportunity for interested persons to be heard and present papers at such conferences;

"(8) support, in consultation with the Department of State, joint marine research projects with foreign nations;

"(9) utilize facilities and personnel of existing Federal agencies, including scientific laboratories and research facilities;

"(10) accept, and for all general purposes of this Act, utilize funds from other sources, including but not limited to State and local funds, university funds, and donations;

"(11) accept donations of equipment if such equipment benefits regional marine research programs, with appropriate tax deductions available; and

"(12) acquire secret processes, inventions, patent applications, patents, licenses, and property rights, by purchase, license, lease, or donation.

"(d) AREAS OF INVESTIGATION.—In carrying out the purposes and authorities of this section, regional research centers may support or assist research, investigations, studies, surveys, or demonstrations with respect to, but not limited to—

"(1) baseline assessment of marine environmental quality, including chemical, physical, and biological indicators of environmental quality;

"(2) basic oceanographic and biological conditions and processes;

"(3) effects or potential effects of contaminants, including nutrients, toxic chemicals and heavy metals, on the environment, including marine and aquatic organisms;

"(4) inventory of pollutant sources and pollutant discharges into the coastal environment;

"(5) transport, dispersion, transformation, and fate and effect of contaminants in the marine environment;

"(6) marine and estuarine habitat assessment, protection, and restoration;

"(7) methods and techniques for modeling environmental quality conditions and trends;

"(8) methods and techniques for sampling of water, sediment, marine and aquatic organisms, and demonstration of such methods and techniques;

"(9) the effects on human health of contaminants or combinations of contaminants at various levels, whether natural or anthropogenic, that are found in the environment;

"(10) assessment of potential effects of major coastal and offshore development projects in the region;

"(11) assessment and monitoring of the effects of climate change on marine resources in the region; and

"(12) analysis and interpretation of research data for the benefit of State and local environmental protection and resource management agencies in the region.

"(c) CREATION OF REGIONAL CENTERS.—(1) The Governors of a majority of the States in a region, as defined in subsection (f), may develop and submit for approval to the Marine Research Coordination Board a combined, interstate proposal for a Regional Marine Research Center.

"(2) Proposals for establishment of a Regional Marine Research Center shall—

"(A) identify the goals and objectives of the Center;

"(B) identify the research organizations that will participate in the Center, including State agencies, research laboratories and organizations, academic institutions, and others;

"(C) identify the organizational structure and authority of the Center, including establishment of a Board of Directors, creation of an Executive Director position, and provision for professional staff and management support;

"(D) identify the research capabilities and experience of the member organizations and how such experience will be coordinated and maintained; and

"(E) provide for a Research Advisory Group to include representatives from affected user and interest groups, including the commercial fishing industry, other marine industries, and environmental organizations, that will advise the Board of Directors in the conduct of authorized activities.

"(3) Any proposal developed pursuant to subsection (1) shall be submitted to the Marine Research Coordination Board for review and approval.

"(4) Within ninety days of receipt of a proposal, the Board shall hold a public hearing in the region to hear comments on the proposal.

"(5) Within one hundred and eighty days after receipt of a proposal, the Board shall approve or disapprove the proposal on consideration of the following criteria—

"(A) inclusion as members of the Center, or other provision or mechanism for full coordination and cooperation with, relevant State agencies, marine research organizations or institutes, and universities with marine programs in the region;

"(B) demonstrated capability in sufficient disciplines to successfully mount a multidisciplinary research program;

"(C) sufficient resources, including laboratory, library, computer, and support facilities;

"(D) a commitment from the member institutions to the support and continuation of an effective marine research program; and

"(E) establishment of an Advisory Group pursuant to paragraph (2)(E), and commitment to adequate procedures for effective consultation with such group.

"(6) In the case of disapproval of a proposal, the Board shall notify the Governors of the submitting States in writing, stating in detail the revisions or modifications necessary to obtain approval of the proposal. The Governors of the interested States may, not later than ninety days following such notification, submit such revisions and modifications as they

deem appropriate. The Board shall approve or disapprove the revised proposal within ninety days of receipt.

"(7) Representatives of the Environmental Protection Agency and the National Oceanic and Atmospheric Administration, designated by the senior administrative official, shall serve as ex officio members of each regional center.

"(f) MARINE RESEARCH REGIONS.—For purposes of this Act, marine research regions are defined as follows:

"(1) Gulf of Maine region, comprised of the marine and near-shore coastal waters off the States of Maine, New Hampshire, and Massachusetts (north of Cape Cod);

"(2) greater New York bight region, from south of Cape Cod to Cape May, comprised of the marine and near-shore coastal waters off the States of Massachusetts, Rhode Island, Connecticut, New York, and New Jersey;

"(3) mid-Atlantic region, from Cape May, New Jersey, to Cape Lookout, comprised of the marine and near-shore coastal waters off the States of New Jersey, Delaware, Maryland, Virginia, and North Carolina;

"(4) South Atlantic bight region, from Cape Lookout to the Florida Keys, comprised of the marine and near-shore coastal waters off the States of North Caro-

lina, South Carolina, Georgia, and Florida (Atlantic coast);

"(5) tropical region, comprised of the marine and near-shore coastal waters off Puerto Rico and the United States Virgin Islands (and to provide for broader international research coordination, representatives from the nations of the Caribbean region may serve as ex officio members of this region);

"(6) Gulf of Mexico region, comprised of the marine and near-shore coastal waters off the States of Florida (Gulf coast), Alabama, Mississippi, Louisiana, and Texas;

"(7) Southern California bight region, comprised of the marine and near-shore coastal waters off the State of California from Point Conception south;

"(8) North Pacific region, from Point Conception to the Canadian border, comprised of the marine and near-shore coastal waters off the States of California, Oregon, and Washington;

"(9) Gulf of Alaska and Arctic Seas region, comprised of the marine and near-shore coastal waters off the State of Alaska; and

"(10) insular Pacific region, comprised of the marine and near-shore coastal waters off the State of

~~Hawaii, Guam, American Samoa, and the Northern Mariana Islands.~~

~~"REGIONAL RESEARCH PLANS~~

~~"SEC. 405. (a) REGIONAL RESEARCH PLANS.—Each Regional Marine Research Center, approved under section 404, shall develop a three-year marine research plan for the region.~~

~~"(b) CONTENTS OF PLAN.—Such marine research plan shall include—~~

~~"(1) an overview of the environmental quality conditions in the near-shore coastal and marine waters of the region and expected treads in these conditions;~~

~~"(2) a description of the research needs, goals, and priorities in the region over the upcoming ten-year period;~~

~~"(3) a comprehensive inventory of all federally-funded marine research and monitoring activities expected to be conducted during the three-year term of the research plan, including, but not limited to, projects funded under—~~

~~"(A) this Act;~~

~~"(B) the National Sea Grant Program;~~

~~"(C) sections 319 and 320 of the Federal Water Pollution Control Act;~~

~~"(D) the Fish and Wildlife Act of 1956; and~~

"(E) the Magnuson Fishery Conservation and Management Act of 1976.

"(4) discussion of the mechanism for coordination with the activities identified in paragraph (3) to avoid duplication and assure effective use of resources;

"(5) description of research projects, areas, and programs anticipated to be assisted with funds provided under section 406 of this Act in the three-year period covered by the plan, including—

"(A) identification of the responsible organization, laboratory(s), or principal investigator(s);

"(B) estimated budget and equipment needs;

"(C) schedule of major activities;

"(D) final products of the project; and

"(E) relationship to research needs and priorities identified in paragraph (2) and to other projects identified in paragraph (3).

"(6) an inventory of supplies and equipment used commonly for research projects in the region.

"(c) PLAN REVIEW AND APPROVAL.—(1) The research plan shall be submitted to the Marine Research Coordination Board for review and approval.

"(2) The Board shall approve or disapprove the research plan within ninety days of receipt.

"(2) In review of research plans, the Board shall consider the degree to which the plan addresses the elements identified in subsection (b) of this section.

"(4) In the case of disapproval of a research plan, the Board shall notify the Board of Directors of the Regional Research Center in writing, stating in detail the revisions or modifications necessary to obtain approval of the proposal. The Center shall, not later than ninety days after such notification, submit such revisions and modifications as they deem appropriate. The Board shall approve or disapprove the revised proposal within ninety days of receipt.

"(d) PLAN REVISION.—The research plan shall be updated at least every three years and resubmitted to the Board for review and approval under this section.

"RESEARCH, SUPPORT, AND EQUIPMENT GRANTS

"SEC. 406. (a) SUPPORT GRANTS.—(1) A regional marine research center for which a proposal has been approved pursuant to section 404, may submit to the Board an application for a support grant on an annual basis.

"(2) The application may provide for funding of basic functions of the Research Center including—

"(A) cost of facilities, offices, and related equipment;

"(B) salaries and expenses of staff and other personnel services;

"(C) reasonable maintenance costs of equipment, including vessels, as determined by the Board; and

"(D) other overhead costs including costs of publications, development of research plans, operation of the Board of Directors, and conduct of scientific and related meetings and seminars.

"(3) The application shall be for a period of a fiscal year and shall be in such form as may be required by the Board.

"(4) In no case may the total Federal grant under this subsection be in excess of $500,000 per fiscal year.

"(5) The Board shall approve an application which is consistent with the requirements of this subsection within 90 days of receipt.

"(b) RESEARCH GRANTS.—(1) A regional marine research center for which a research plan has been approved pursuant to section 405 may submit to the Board an application for implementation of that research plan on an annual basis.

"(2) The research grant application shall provide funding, to the extent available under section 409(a)(2)(A)(ii), to member organizations and agencies for research projects identified in the research plan, as needed and appropriate, to be conducted during that fiscal year.

"(3) The Board shall review grant applications and shall fund the application within ninety days of receipt of the appli-

cation if the application is consistent with the approved research plan.

"(4) The Research Advisory Group of the research center shall have an opportunity to review and comment on the annual grant application and the Board shall consider the comments of the Advisory Group in reviewing grant applications.

"(c) EQUIPMENT SUPPORT.—(1) Any research center with an approved research plan pursuant to section 405 of this act may submit to the Board an application to purchase equipment necessary for the research provided for in the approved research plan and funded under subsection (b), to the extent funds are available under section 409(a)(2)(B).

"(2) Equipment eligible for support under this section includes, but is not limited to—

"(A) monitoring and sampling equipment;

"(B) computer hardware or software;

"(C) scientific measurement and analytic equipment; and

"(D) necessary vessels and related support craft.

"(3) In review and approval of applications under paragraph (2)(D), the Board shall evaluate the following—

"(A) a clearly demonstrated need for the equipment in the region to support identified research projects;

"(B) adequate provision for maintenance and full utilization of the equipment, including loaning of equipment to organizations participating in another marine research center; and

"(C) consultation with the Federal Fleet Coordinating Council and the University Oceanographic Laboratory System (UNOLS) to determine the need for vessels or support craft.

"(4) Regional centers shall report annually to the Board on the status and disposition of any equipment funded under this subsection and shall give notice of ninety days prior to any sale of such equipment.

"(d) REPORTING.—Any Regional Marine Research Center that receives a grant under this section shall report to the board not later than eighteen months after award of the grant on accomplishments made pursuant to this subsection. Such report shall include narrative summaries and technical data in such form as the Board may require. Such report shall be provided to the Governor of each participating State and to the Research Advisory Group for the region.

"(e) MANAGEMENT.—For administrative purposes, the grant funds and grant award process pursuant to this section shall be managed by the Environmental Protection Agency.

"MONITORING AND REGIONAL ASSESSMENT

"SEC. 407. (a) MONITORING AND ASSESSMENT.—Each Regional Marine Research Center established in ac-

cordance with section 404 and receiving funds pursuant to sections 406 and 409 of this Act shall, consistent with its research plan developed under section 405—

"(1) support baseline monitoring of fundamental marine environmental conditions in the region, in accordance with criteria, measurement standards, and quality assurance techniques required by the Board; and

"(2) prepare periodic assessments of the status of marine environmental quality and resources.

"(b) REGIONAL ASSESSMENT REPORT.—(1) The Regional Assessment Report mandated under this section shall—

"(A) provide an overview of environmental quality in the region using such information as is obtained pursuant to paragraph (A) of subsection (a);

"(B) describe trends in natural resource and environmental quality conditions;

"(C) summarize the activities and research projects of the center and identify future needed projects; and

"(D) provide recommendations for improvements in the design or implementation of Federal, State, or local programs for the protection of environmental quality in the region.

"(2) A draft of the Regional Assessment Report shall be reviewed by the Research Advisory Group for their comments and input before final submission.

"(3) The Regional Assessment Report shall be drafted in nontechnical style and made available to the public, as well as to local, State, and Federal regulatory and management agencies. The Regional Assessment Report shall be submitted to the Governors of each State in the region.

"(4) Reports under this subsection shall be submitted to the Board on a schedule to be determined by the Board. To the extent practicable, the Board shall provide for reports beginning three years after the date of establishment of each center and every three years thereafter.

"MARINE RESEARCH COORDINATION BOARD

"SEC. 408. (a) ESTABLISHMENT OF MARINE RESEARCH COORDINATION BOARD.—(1) There is authorized to be established a Marine Research Coordination Board to manage and coordinate the efforts of the regional marine research centers authorized under section 404 of this Act.

"(2) The members of the Board shall be representatives of the following Federal agencies, designated by the senior administrative official of each agency—

"(A) the Environmental Protection Agency;

"(B) the National Oceanic and Atmospheric Administration;

"(C) the National Science Foundation;

"(D) the United States Fish and Wildlife Service,

"(E) the Minerals Management Service,

"(F) the United States Army Corps of Engineers,

"(G) the United States Navy, and

"(H) the National Academy of Science.

"(3) The executive director of each Regional Marine Research Center, approved pursuant to section 404(c), or the director's official designee, also shall serve as full members of the Board.

"(4) The representative of the Environmental Protection Agency shall serve as Chair of the Board.

"(5) The Board shall organize its internal structure and functions as it deems necessary to best fulfill its responsibilities.

"(b) FUNCTIONS AND AUTHORITIES.—(1) The Board shall be responsible for the following—

"(A) review and approval of proposals for Regional Marine Research Centers, including conducting a public hearing in the region, in accordance with the provisions of section 404;

"(B) review and approval of the three-year research plans submitted by Regional Marine Research Centers, in accordance with section 405; and

"(C) approval of grant applications from the Regional Marine Research Centers, in accordance with section 406.

"(2) The Board is authorized to—

"(A) hire professional and support staff to carry out the provisions of this section;

"(B) hire an Executive Director at the Senior Executive Service (SES) level;

"(C) expend funds authorized under subsection (d) as required to carry out the provisions of this section; and

"(D) make grants to the Regional Marine Research Centers, pursuant to sections 406 and 409.

"(e) REPORT TO CONGRESS.—(1) The Board shall make periodic reports to Congress on the health of the Nation's near-shore coastal and marine waters, and on activities and accomplishments of the Regional Marine Research Centers.

"(2) Reports under this subsection shall be made within one hundred and eighty days of the receipt of reports required under section 407(b) of this Act.

"(d) FUNDING.—The activities of the Board shall be supported with funds available under section 409 of this Act.

"AUTHORIZATIONS

"SEC. 409. AUTHORIZATIONS.—(a)(1) For the purpose of carrying out the activities authorized by sections 404, 405,

~~406, and 407 of this Act there are authorized to be appropriated $29,500,000 for each of the fiscal years ending September 30, 1989, 1990, 1991, 1992, and 1993.~~

~~"(2) Such funds shall be allocated as follows—~~

~~"(A) grants to regional marine research centers established pursuant to section 404: *Provided,* That—~~

~~"(i) such research center has submitted a proposal which has been approved pursuant to section 404 of this Act;~~

~~"(ii) no annual grant to such center shall exceed $3,000,000; and in the case of the Tropical Region, no annual grant to such center shall exceed $1,500,000.~~

~~"(B) grants for purchase of equipment under section 406: *Provided,* That such sums are not allotted for use under subparagraph (A).~~

~~"(b) For the purpose of carrying out the activities authorized by section 408 of this Act there are authorized to be appropriated $1,000,000 for each of the fiscal years ending September 30, 1989, 1990, 1991, 1992, and 1993.".~~

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. (a) TITLE.—This Act may be cited as the "Marine Research Act of 1988".

(b) TABLE OF CONTENTS.—

Sec. 401. Findings.
Sec. 402. Purpose.
Sec. 403. Definitions.

Sec. 404. General authority.
Sec. 405. Regional research plans.
Sec. 406. Research, support, and equipment grants.
Sec. 407. Monitoring and regional assessment.
Sec. 408. Regional Marine Research Oversight Board.
Sec. 409. Authorizations.

AMENDMENTS TO THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

SEC. 2. AMENDMENT.—The Marine Protection, Research, and Sanctuaries Act is amended by adding at the end thereof the following new title:

"TITLE IV—REGIONAL MARINE RESEARCH PROGRAMS

"FINDINGS

"SEC. 401. FINDINGS.—The Congress finds that—

"(a) the Nation's marine and coastal waters are a resource of tremendous value;

"(b) marine and coastal waters, including estuaries, are vital and productive natural ecosystems;

"(c) marine and coastal waters support commercial fisheries with an estimated value of over $5,500,000,000 per year, and recreational fisheries with an estimated value of over $7,500,000,000 per year;

"(d) marine and coastal waters support extensive recreational activities and related support services;

"(e) maintenance and protection of the environmental quality of the Nation's marine and coastal

waters is essential to the commercial and recreational activities they support;

"(f) recent studies and reports provide evidence of growing threats to the environmental quality and ecological integrity of marine and coastal waters;

"(g) a report by the Congressional Office of Technology Assessment found that the overall health of marine and coastal waters is declining or threatened;

"(h) studies by the Environmental Protection Agency and the National Oceanic and Atmospheric Administration have identified unexpectedly high levels of contaminants in a number of coastal waters and sediments;

"(i) expanded and improved research and monitoring of marine and coastal waters is needed to gain a more complete understanding of these ecosystems, how they function naturally, and how human activities may be affecting them;

"(j) ongoing changes in world climate will alter regional weather and oceanic processes in ways which will affect the distribution and abundance of marine organisms;

"(k) there is a need to develop marine and coastal research programs which take a comprehensive ap-

proach to marine ecosystems in the various coastal and marine regions of the Nation;

"(l) there is a need to improve the extent of coordination among various marine and coastal research activities at the regional level and provide for long-range planning of research and related projects;

"(m) significant improvements in marine and coastal research can be accomplished through expansion and support of research at the regional level;

"(n) there is a need for sufficient and sustained Federal support for research and monitoring to protect the Nation's marine and coastal environment;

"(o) there is a need for comprehensive and periodic reports to the Congress on conditions and trends in marine and coastal environmental quality, research needs, and response programs; and

"(p) the results of marine and coastal research are valuable to developing and implementing marine and coastal environmental protection programs at the Federal, State, regional, and local levels.

"PURPOSE

"SEC. 402. The purposes of this title are to—

"(a) establish regional marine research programs to protect the Nation's marine and coastal environment;

"(b) provide sufficient and sustained funding for these regional programs to develop comprehensive, long-range research plans, and coordinate and support marine and coastal research and related activities;

"(c) establish within the Federal Government the capability to provide effective oversight of regional marine research; and

"(d) provide for periodic, comprehensive reports to Congress concerning conditions, trends, research needs, and response programs in the Nation's marine environment.

"DEFINITIONS

"SEC. 403. For purposes of this title—

"(a) the term 'Board' means the Regional Marine Research Oversight Board established pursuant to section 408 of this title;

"(b) the term 'region' means a Marine Research Region designated in section 404(f) of this title;

"(c) the term 'Federal agency' means any department, agency, or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any Government corporation;

"(d) the term 'State' means a State, the District of Columbia, the Commonwealth of Puerto Rico, the

Virgin Islands, Guam, American Samoa, and the Trust Territory of the Pacific Islands;

"(e) the term 'marine and coastal waters' means all waters seaward of the head of tide, including estuaries, near-shore coastal waters, and off-shore waters;

"(f) the term 'local government' means any city, town, borough, county, parish, district, or other public body which is a political subdivision of a State and which is created pursuant to State law; and

"(g) the term 'nonprofit organization' means any organization, association, or institution described in section 501(c)(3) of the Internal Revenue Code of 1954 which is exempt from taxation pursuant to the provisions of section 501(a) of such Code.

"REGIONAL MARINE RESEARCH PROGRAMS

"SEC. 404. (a) GENERAL AUTHORITY.—There is authorized to be established within each region, as defined under subsection (f), a regional marine research program.

"(b) PURPOSES.—Regional marine research programs established pursuant to this section are intended to—

"(1) set overall goals for an integrated, long-term program of research and monitoring of marine and coastal environmental quality in the region;

"(2) develop comprehensive, long-range plans which identify the specific needs and priorities of research and monitoring activities and projects;

"(3) assure coordination of research among State agencies and other organizations involved in marine research in the region;

"(4) monitor environmental quality conditions of marine and coastal waters and assess the impacts of proposed activities in these waters;

"(5) provide a forum for review and comment on research plans from affected user and interest groups, such as commercial fishermen, other marine industries, and environmental organizations; and

"(6) provide a forum for coordinating research among research institutions, with other regions and with neighboring countries; and

"(7) make public reports on the environmental quality conditions in the region; analyze and interpret research data and information at the request of the relevant State and local agencies in the region for their application in environmental protection programs; and make such scientific recommendations to local, State, and Federal agencies on design of effective programs to address identified problems as may be necessary.

"(c) AUTHORITIES.—Each regional marine research program shall be authorized to—

"(1) support basic and applied research, investigations, monitoring, and assessment activities through

its member organizations and agencies in the estuarine, coastal, and offshore environments of the region;

"(2) cooperate with Federal agencies, with States and with local government entities, interstate and regional agencies, other public agencies and authorities, nonprofit institutions and organizations, or other persons, in the preparation and support of marine research in the region;

"(3) enter into contracts, cooperative agreements or grants to member organizations, and to other State and local governmental entities, other public agencies or institutions, and nonprofit institutions and organizations for purposes of carrying out the provisions of this Act;

"(4) collect and make available through publications and other appropriate means, the results of, and other information pertaining to, the research conducted in the region;

"(5) support development of effective and practical methods and techniques for the detection and assessment of contamination in the marine environment;

"(6) hire staff and equip them as may be necessary to carry out the provisions of this Act, including the ownership and operation of research vessels and

construction of necessary vessel-related support structures;

"(7) call conferences on regional marine research and assessment issues, giving opportunity for interested persons to be heard and present papers at such conferences;

"(8) support, in consultation with the Department of State, joint marine research projects with foreign nations;

"(9) utilize facilities and personnel of existing Federal agencies, including scientific laboratories and research facilities;

"(10) accept, and for all general purposes of this Act, utilize funds from other sources, including but not limited to State and local funds, university funds, and donations;

"(11) accept donations of equipment if such equipment benefits regional marine research programs, with appropriate tax deductions available; and

"(12) acquire secret processes, inventions, patent applications, patents, licenses, and property rights, by purchase, license, lease, or donation.

"(d) AREAS OF INVESTIGATION.—In carrying out the purposes and authorities of this section, regional research programs may support or assist research, investigations,

studies, surveys, or demonstrations with respect to, but not limited to—

"(1) baseline assessment of marine environmental quality, including chemical, physical, and biological indicators of environmental quality;

"(2) basic oceanographic and biological conditions and processes;

"(3) effects or potential effects of contaminants, including nutrients, toxic chemicals and heavy metals, on the environment, including marine and aquatic organisms;

"(4) effects of modification of habitats, including coastal wetlands, seagrass beds and reefs, on the environment, including marine organisms;

"(5) inventory of pollutant sources and pollutant discharges into the coastal environment;

"(6) transport, dispersion, transformation, and fate and effect of contaminants in the marine environment;

"(7) marine and estuarine habitat assessment, protection, and restoration;

"(8) methods and techniques for modeling environmental quality conditions and trends;

"(9) methods and techniques for sampling of water, sediment, marine and aquatic organisms, and demonstration of such methods and techniques;

"(10) the effects on human health and the environment of contaminants or combinations of contaminants at various levels, whether natural or anthropogenic, that are found in the environment;

"(11) assessment of potential effects of major coastal and offshore development projects in the region;

"(12) assessment and monitoring of the effects of climate change on marine resources in the region; and

"(13) analysis and interpretation of research data for the benefit of State and local environmental protection and resource management agencies in the region.

"(e) CREATION OF REGIONAL PROGRAMS.—(1) The Governors of a majority of the States in a region, as defined in subsection (f), may submit for approval to the Regional Marine Research Oversight Board a combined, interstate proposal for a regional marine research program.

"(2) Proposals for establishment of a regional marine research program shall—

"(A) identify the goals and objectives of the program;

"(B) identify the organizational structure and operating procedures of the program;

"(C) identify the research organizations within the region that will participate in the program, including State agencies, research laboratories and organizations (including marine research laboratories and organizations operated within the region by Federal agencies and national laboratories with marine research programs), academic institutions, and others;

"(D) identify the research capabilities and experience of the member organizations and how such capabilities and experience will be coordinated and maintained; and

"(E) provide for a Board of Directors, which shall include at all times not less than one member who is a Director of a Sea Grant Program of a State in the region, to oversee the administration and management of the regional research program;

"(F) provide for the position of Executive Director of the regional research program who shall administer and manage the program;

"(G) provide for professional and administrative staff support as needed to carry out the authorities, goals and objectives of the regional research program;

"(H) to the fullest extent practicable, make use of existing administrative and related resources and facilities, including the resources and facilities of the

Sea Grant Program, in order to assure the most cost-effective management and implementation of the authorities and activities of the research program; and

"(I) provide for a Research Advisory Group, to include representatives from affected user and interest groups, including the commercial fishing industry, other marine industries, and environmental organizations, to advise the Board of Directors in the conduct of authorized activities.

"(3) Proposals for a regional marine research program shall be developed by a Regional Marine Research Organizing Committee which shall consist of the Director of the Sea Grant Program in each State in the region. The Organizing Committee shall coordinate and consult with agencies, institutions, and organizations which are expected to participate in the research program and with interest groups expected to participate in the Research Advisory Group in the development of the proposal.

"(4) Within ninety days of receipt of a proposal, the Board shall hold a public hearing in the region to hear comments on the proposal.

"(5) Within one hundred and eighty days after receipt of a proposal, the Board shall approve or disapprove the proposal on consideration of the following criteria—

"(A) inclusion as participating members of the program or other provision or mechanism for full coordination and cooperation with appropriate State agencies, marine research organizations or institutions, relevant national laboratories, and universities with marine programs in the region;

"(B) demonstrated capability in sufficient disciplines to successfully mount a multidisciplinary research program;

"(C) sufficient resources, including laboratory, library, computer, and support facilities;

"(D) a commitment from the member institutions to the support and participate in the regional marine research program; and

"(E) establishment of an Advisory Group pursuant to paragraph (2)(I), and commitment to adequate procedures for effective consultation with such group.

"(6) In the case of disapproval of a proposal, the Board shall notify the Governors of the submitting States in writing, stating in detail the revisions or modifications necessary to obtain approval of the proposal. The Governors of the interested States may, not later than ninety days following such notification, submit such revisions and modifications as they deem appropriate. The Board shall approve or disapprove the revised proposal within ninety days of receipt.

"(f) MARINE RESEARCH REGIONS.—For purposes of this Act, marine research regions are defined as follows:

"(1) Gulf of Maine region, comprised of the marine and near-shore coastal waters off the States of Maine, New Hampshire, and Massachusetts (north of Cape Cod);

"(2) greater New York bight region, from south of Cape Cod to Cape May, comprised of the marine and coastal waters off the States of Massachusetts, Rhode Island, Connecticut, New York, and New Jersey;

"(3) mid-Atlantic region, from Cape May, New Jersey, to Cape Lookout, comprised of the marine and coastal waters off the States of New Jersey, Delaware, Maryland, Virginia, and North Carolina;

"(4) South Atlantic bight region, from Cape Lookout to the Florida Keys, comprised of the marine and coastal waters off the States of North Carolina, South Carolina, Georgia, and Florida (Atlantic coast);

"(5) tropical region, comprised of the marine and coastal waters off Puerto Rico and the United States Virgin Islands (and to provide for broader international research coordination, representatives from the nations of the Caribbean region may serve as ex officio members of the program of this region);

"(6) Gulf of Mexico region, comprised of the marine and coastal waters off the States of Florida (Gulf coast), Alabama, Mississippi, Louisiana, and Texas;

"(7) California region, comprised of the marine and coastal waters off the State of California from Point Reyes south;

"(8) North Pacific region, from Point Reyes to the Canadian border, comprised of the marine and coastal waters off the States of California, Oregon, and Washington;

"(9) Gulf of Alaska, Bering and Arctic Seas region, comprised of the marine and near-shore coastal waters off the State of Alaska; and

"(10) insular Pacific region, comprised of the marine and coastal waters off the State of Hawaii, Guam, American Samoa, and the Northern Mariana Islands.

"REGIONAL RESEARCH PLANS

"SEC. 405. (a) REGIONAL RESEARCH PLANS.—(1) Each regional marine research program, approved under section 404 shall develop a three-year marine research and assessment plan for the region.

"(2) In development of research plans, the Board of Directors of the regional research program shall review and consider findings and recommendations of the national plan de-

veloped pursuant to the National Ocean Pollution Planning Act of 1978.

"(b) CONTENTS OF PLAN.—Such marine research plan shall include—

"(1) an overview of the environmental quality conditions in the near-shore coastal and marine waters of the region and expected trends in these conditions;

"(2) a description of the research and assessment needs, goals, and priorities in the region over the upcoming ten-year period with emphasis on the upcoming three-to-five year period;

"(3) a comprehensive inventory and description of all federally funded marine research and assessment activities expected to be conducted in the region during the three-year term of the research plan, including, but not limited to, projects funded under—

"(A) this Act;

"(B) the National Sea Grant Program;

"(C) section 320 of the Federal Water Pollution Control Act as amended;

"(D) the Fish and Wildlife Act of 1956; and

"(E) the Magnuson Fishery Conservation and Management Act of 1976.

"(4) an inventory and description of other research and assessment projects expected to be funded

by public and private research organizations in the region;

"(5) a general description of research and assessment projects, including monitoring and assessment activities pursuant to section 407(a)(1), to be given priority for funding under section 406 of this Act in the three-year period covered by the plan, including the objectives of such projects and the approximate schedule, funding level, and products of such projects.

"(6) to the extent practicable, review of research and assessment projects which are addressing issues common to neighboring regions and discussion of coordination of these projects; and

"(7) an inventory of supplies and equipment used commonly for research projects in the region.

"(c) PLAN REVIEW AND APPROVAL.—(1) The research plan shall be submitted by the Board of Directors of the regional program to the Regional Marine Research Oversight Board for review and approval.

"(2) The Research Advisory Group established pursuant to section 404(e)(2)(I) shall have an opportunity to review and comment on the research plan.

"(3) In review of research plans, the Board shall consider the degree to which the plan addresses the elements identified in subsection (b) of this section, any comments of

the Research Advisory Group, and the past performance of the regional program in implementation of previous plans.

"(4) The Board shall approve or disapprove the research plan within one hundred and twenty days of receipt.

"(5) In the case of disapproval of a research plan, the Board shall notify the Board of Directors in writing, stating in detail the revisions or modifications necessary to obtain approval of the plan. The Board of Directors shall, not later than ninety days after such notification, submit such revisions and modifications as they deem appropriate. The Board shall approve or disapprove the revised plan within ninety days of receipt.

"(d) PLAN REVISION.—The research plan shall be revised and updated to reflect changing conditions every three years and resubmitted to the Board for review and approval under this section.

"RESEARCH, SUPPORT, AND EQUIPMENT GRANTS

"SEC. 406. (a) SUPPORT GRANTS.—(1) A regional marine research program for which a proposal has been approved pursuant to section 404, may submit to the Board an application for a support grant on an annual basis.

"(2) The application may provide for funding of basic functions of the program including—

"(A) cost of facilities, offices, and related equipment;

"(B) salaries and expenses of staff and other personnel services;

"(C) reasonable maintenance costs of equipment, including vessels, as determined by the Board; and

"(D) other overhead costs including costs of publications, development of research plans, and conduct of scientific and related meetings and seminars.

"(3) The application shall be for a period of a fiscal year and shall be in such form as may be required by the Board.

"(4) The Board shall approve or disapprove an application pursuant to this subsection within ninety days of receipt.

"(b) RESEARCH GRANTS.—(1) A regional marine research program for which a research plan has been approved pursuant to section 405 may submit to the Board an application for funding of research and assessment projects, in an amount to be specified by the Board and consistant with this Act, to support implementation of the approved research plan on an annual basis.

"(2) Organizations and agencies identified pursuant to section 404(e)(2)(C) may submit to the Board of Directors of the regional marine research program proposals for specific research and assessment projects.

"(3) Proposals submitted pursuant to paragraph (2) shall include—

"(A) identification of the responsible organization and principal investigator(s);

"(B) a budget statement and description of equipment needs;

"(C) a schedule of milestones, interim products, and final products;

"(D) a description of the final products of the research or assessment project;

"(E) a description of the relationship of the proposed project to the goals, objectives, and priorities of the research plan for the region and the relationship to other projects to be conducted in the region; and

"(F) any other information as may be required by the Board of Directors of the regional research program or the Regional Marine Research Oversight Board.

"(4) Proposals submitted pursuant to paragraph (2) shall be provided to the Regional Marine Research Oversight Board which shall provide for the peer review of each research or assessment project. Such peer review shall be conducted promptly and shall include review of each project by not less than two research scientists from a reigon other than the region in which the project is proposed. Findings of the peer review shall be provided to the Board of Directors of the regional research program submitting the proposal.

"(5) In selection of proposed projects for inclusion in the application for funding under this subsection, the Board of Directors shall consider—

"(A) the views and comments of the organizations and agencies identified pursuant to section 404(e)(2)(C);

"(B) the views and comments of the Research Advisory Group established pursuant to section 404(e)(2)(I);

"(C) the findings of the peer review process provided for in paragraph (4); and

"(D) the extent to which the proposed project is consistent with the goals, objectives, and priorities identified in the research plan.

"(6) Projects designed to extend beyond a one-year period shall include a full description of the entire project pursuant to paragraph (3) at the time of submittal and shall be reviewed pursuant to paragraph (4) subsequent to initial submittal only.

"(7) The Regional Marine Research Oversight Board shall review grant applications submitted pursuant to this section and shall approve or disapprove the application within ninety days of receipt.

"(c) EQUIPMENT SUPPORT.—(1) The Board of Directors of any research program with an approved research plan

pursuant to section 405 of this Act may submit to the Board an application to purchase equipment necessary for the research provided for in the approved research plan and funded under subsection (b).

"(2) Equipment eligible for support under this section includes, but is not limited to—

"(A) monitoring and sampling equipment;

"(B) computer hardware or software;

"(C) scientific measurement and analytic equipment; and

"(D) necessary vessels and related support craft.

"(3) In review and approval of applications under subsection (2), the Board shall establish that there is—

"(A) a clearly demonstrated need for the equipment in the region to support identified research projects; and

"(B) adequate provision for maintenance and full utilization of the equipment, including loaning of equipment to organizations participating in another marine research center.

"(4) In review and approval of applications under paragraph (2)(D), the Board shall consult with the Federal Fleet Coordinating Council and the University Oceanographic Laboratory System (UNOLS) to determine the need for vessels or support craft.

"(5) The Board of Directors of each program shall hold title to equipment purchased pursuant to this section, shall report annually to the Board on the status and disposition of any equipment funded under this subsection, and shall give notice of ninety days prior to any sale or other disposition of such equipment.

"(d) REPORTING.—Any regional marine research program that receives a grant under subsection (b) of this section shall report to the Board not later than eighteen months after award of the grant on activities pursuant to this subsection. Such report shall include narrative summaries and technical data in such form as the Board may require.

"(e) MANAGEMENT.—For administrative purposes, grant funds pursuant to this section shall be managed by the National Oceanic and Atmospheric Administration.

"MONITORING AND REGIONAL ASSESSMENT

"SEC. 407. (a) MONITORING AND ASSESSMENT.—Each regional marine research program established in accordance with section 404 and receiving funds pursuant to sections 406 and 409 of this Act shall—

"(1) consistent with the research plan developed under section 405, support baseline monitoring of fundamental marine environmental conditions in the region, in accordance with criteria, measurement standards, and quality assurance techniques required by the Board; and

"(2) prepare periodic reports providing an assessment of the status of marine environmental quality and resources in the region.

"(b) REGIONAL MARINE ASSESSMENT REPORT.—(1) The regional marine assessment report mandated under this section shall—

"(A) provide an overview of environmental quality in the region using such information as is obtained pursuant to paragraph (1) of subsection (a) and such other information as is available;

"(B) describe trends in natural resource and environmental quality conditions;

"(C) summarize the findings and conclusions of projects of the research program and identify issues and research needs; and

"(D) provide recommendations for improvements in the design or implementation of Federal, State, or local programs for the protection of environmental quality in the region.

"(2) A draft of the regional marine assessment report shall be reviewed by the Research Advisory Group for their comments and input before final submission to the Board.

"(3) The regional marine assessment report shall be drafted in nontechnical style and shall be made available to the public, as well as to local, State, and Federal regulatory and man-

agement agencies. The regional marine assessment report shall be submitted to the Governors of each State in the region.

"(4) Reports under this subsection shall be submitted to the Board on a schedule to be determined by the Board. To the extent practicable, the Board shall provide for reports beginning three years after the date of establishment of each regional program and every three years thereafter.

"REGIONAL MARINE RESEARCH OVERSIGHT BOARD

"SEC. 408. (a) ESTABLISHMENT OF REGIONAL MARINE RESEARCH OVERSIGHT BOARD.—(1) There is authorized to be established a Regional Marine Research Oversight Board to oversee and coordinate the activities of the regional marine research programs authorized under section 404 of this Act.

"(2) The members of the Board shall be representatives of the following Federal agencies and institutions designated by the senior administrative official of each agency or institution—

"(A) the National Oceanic and Atmospheric Administration,

"(B) the Environmental Protection Agency,

"(C) the National Science Foundation,

"(D) the United States Fish and Wildlife Service,

"(E) the Minerals Management Service,

"(F) the United States Army Corps of Engineers,

"(G) the Department of Energy,

"(H) the United States Navy, and

"(I) the United States Geological Survey, and

"(J) the National Academy of Science.

"(3) The representative of the National Oceanic and Atmospheric Administration shall serve as Chair of the Board.

"(4) The Board shall organize its internal structure and functions as it deems necessary to best fulfill its responsibilities.

"(b) FUNCTIONS AND AUTHORITIES.—(1) The Board shall be responsible for the following—

"(A) review and approval of proposals for regional marine research programs, including conducting a public hearing in the region, in accordance with the provisions of section 404;

"(B) review and approval of the three-year research plans submitted by regional marine research programs, in accordance with section 405; and

"(C) approval of grant applications from the regional marine research programs, in accordance with section 406.

"(2) The Board is authorized to—

"(A) hire professional and support staff to carry out the provisions of this section;

"(B) hire an Executive Director at the Senior Executive Service (SES) level;

"(C) expend funds authorized under subsection (d) as required to carry out the provisions of this section; and

"(D) make grants to the regional marine research programs, pursuant to sections 406 and 409 of this Act.

"(c) REPORT TO CONGRESS.—(1) The Board shall make periodic reports to Congress on the health of the Nation's marine and coastal waters, and on the research and assessment activities and accomplishments of the regional marine research programs.

"(2) Reports under this subsection shall be made within three years of the date of enactment and every three years thereafter.

"(d) FUNDING.—The activities of the Board shall be supported with funds available under section 409(b) of this Act.

"AUTHORIZATIONS

"SEC. 409. (a)(1) For the purpose of carrying out the activities authorized by sections 404, 405, 406, and 407 of this Act there are authorized to be appropriated from the Marine Research Trust Fund $33,000,000 per year.

"(2) Such funds shall be allocated as follows—

"(A) for the costs of the Regional Marine Research Oversight Board established pursuant to section 408 of ths Act, except that not more than $1,000,000 shall be available for such purposes for any fiscal year;

"(B) for grants to regional marine research programs pursuant to section 406(a) of this Act, but only if such research program has submitted a proposal which has been approved pursuant to section 404 of this Act and each grant under this paragraph is not in excess of $500,000 per fiscal year;

"(C) for grants to support implementation of the regional research plan developed pursuant to section 405 of this Act, including research projects pursuant to section 406(b) and regional monitoring and assessment activities pursuant to section 407, but only if a research plan has been approved pursuant to section 405(c) and the aggregate amounts of grants under paragraphs (B) and (C) of this subsection to any such program for any fiscal year do not exceed $3,000,000, or $1,500,000 in the case of the Tropical region defined by section 404(f)(5), or $5,000,000 in the case of the Gulf of Mexico region defined by section 404(f)(6); and

"(D) for grants for the purchase of equipment under section 406(c) of this Act, to the extent of

amounts in the Marine Research Fund which are not appropriated pursuant to paragraphs (A), (B), or (C).

"(3) In the event that funds available in the Marine Research Trust Fund are not sufficient to make grants in the full amounts provided for in this section, the Regional Marine Research Oversight Board shall give priority to grants pursuant to paragraph (A) of subsection (2); shall give second priority to grants pursuant to paragraph (B) of subsection (2); and shall make grants pursuant to paragraph (C) of subsection (2) available on a pro rated basis.

"(b) For the purpose of carrying out the activities authorized by section 408 of this Act there are authorized to be appropriated from the Marine Research Trust Fund pursuant to chapter 98, subchapter A, section 9511 of the United States Code,$1,000,000 per fiscal year.".

Amend the title so as to read: "A bill to amend the Marine Protection, Research, and Sanctuaries Act to protect marine and coastal waters through establishment of regional marine research programs.".

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STATEMENT OF

SENATOR GEORGE J. MITCHELL

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY AND THE

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION

AND THE ENVIRONMENT

HEARING ON THE MARINE RESEARCH ACT

JUNE 29, 1988

Good morning Mr. Chairman, ladies and gentlemen. I am very pleased to join you this afternoon to discuss the growing environmental problems in our marine waters and the need to expand and strengthen research and assessment of these waters.

I want to congratulate Chairman Lowry and Chairman Studds for their leadership in focusing public attention on marine environmental issues and for organizing this hearing on marine research. I also want to express my appreciation to Congressman Brennan, my colleague from the State of Maine and the distinguished former Governor of our State, for his help and encouragement in the development of legislation to improve marine research to be discussed here today.

Reports of environmental problems in marine waters have become increasingly frequent. We have heard about beach closings in New Jersey, pollution of Boston Harbor, a large "dead zone" in the Gulf of Mexico, closing of shellfish areas, high levels of toxics in Puget Sound, and the death of dolphins in the mid-Atlantic. Just last month, we learned of a new threat to the environmental quality of coastal waters -- acid rain.

Over the past several months, the Senate Subcommittee on Environmental Protection, which I chair, has held a series of hearings to review environmental trends and conditions in marine and coastal waters around the Nation. Witnesses at the hearings agreed that coastal waters face significant environmental problems. The Congressional Office of Technology Assessment offered the stark conclusion that --

> "In the absence of additional measures to protect our marine waters, the next few decades will witness new or continued degradation in many...coastal waters around the country."

The Marine Research Act, which Congressman Brennan and I introduced early this year, is intended to expand and strengthen research and assessment of marine and coastal waters. A better marine research program will help us develop the capability to identify and prevent threats to the marine environment before they grow to be unmanageable and costly problems.

The bill provides general authority to establish ten regional marine research programs. The basic objective of the marine research programs will be to provide a regional focus for planning, coordinating, and conducting marine scientific research. The regional research programs will be developed by the existing marine research institutions in each region, including universities, State agencies, and private laboratories.

A key element of the bill is provision for a three-year research plan which sets the goals and priorities for research and monitoring in the marine and coastal waters of each region. Regional research plans will address projects ranging from basic oceanographic research to more specific, applied research issues.

The bill also provides authority for the regional programs to conduct baseline monitoring and assessment of marine environmental quality. Programs are to submit general reports to the State governors and the public on trends and conditions in the region.

The fishing community, environmental groups and other interested parties can participate in this process through a formal Research Advisory Group. The Federal government will play a limited oversight role through a Research Oversight Board made up of interested Federal agencies.

The regional programs will be eligible for support grants of $3 million per year. The bulk of this funding, at least $2.5 million, will be used directly by research organizations to carry out the research and related activities identified in the research plan. Programs may use up to $500,000 for activities, including development of plans, sponsoring technical seminars, and publication of reports and studies.

I am pleased to report that the full Environment and Public Works Committee reported the Marine Research Act on June 23rd. In marking up this bill, we made very effort to respond to the comments and suggestions of witnesses at a hearing on the bill on April 28th. Several key changes were adopted during the mark-up process.

Most importantly, the role of the Sea Grant program in the regional marine research program is expanded and strengthened in several ways. Sea Grant State Program Directors will take the lead in the early development of marine research programs. And, Sea Grant State Program Directors will form the core of the regional Board of Directors which will manage the regional program on an ongoing basis.

Provisions of the bill related to research and monitoring grants were expanded to include national peer review of specific projects and criteria for selection of specific projects at the regional level.

Another key change to the bill shifts the leadership of the Federal board from the Environmental Protection Agency (EPA) to the National Oceanographic and Atmospheric Administration (NOAA). This will give NOAA a clear and primary role in oversight of the research program.

Several witnesses at our hearings on this legislation commented on the need to assure a stable and reliable funding base for the research program. In response to these comments, I will be introducing legislation today to create a Marine Research Trust Fund. The fund would be supported by both direct appropriations and excess income to the existing fund established in Title III of the Outer Continental Shelf Lands Act.

This legislation has evolved and improved over the past several months. But the basic goals and objectives of the bill are essentially unchanged. Let me review them for you briefly.

First, this bill is intended to strengthen our marine research program, rather than add to our existing regulatory programs. By improving our research program and building our knowledge of the marine environment, we will be taking a significant step toward protecting this resource and preventing the development of major, costly pollution problems.

Second, a major objective of this legislation is improved planning and coordination of marine research projects. Improved planning will help avoid duplication of research, focus limited funds on the most crucial projects, and generally improve the effectiveness and efficiency of marine research efforts. In other words, we hope to get a "bigger bang for the buck" in the research program.

Third, the bill calls for an increase in marine research at the regional level and addresses issues common to an overall marine ecosystem. Regional research institutions are an underutilized resource which have a great potential to make an increased contribution to marine research. Regional research can contribute to development of badly needed baseline data on the marine environment which is beyond the reach of Federal agencies. Furthermore, regional research can be better tied into State and local agencies which can respond to pollution or related problems.

Finally, Mr. Chairman, I want to warn you that the Administration witnesses to testify shortly do not share my enthusiasm for this important legislation. In testifying before my Subcommittee on Environmental Protection, Administration witnesses stated that they opposed the bill because of its cost and because existing agencies already have the authority to carry out similar activities.

With regard to the question of cost, I urge you to view this legislation in the context of the broader marine research program. While there is growing evidence of threats to the environmental quality of marine resources, overall funding for marine research has declined by about one third since 1982.

Responding to marine environmental problems will require sufficient research funding to assure that presently authorized programs operate effectively. But if we are to keep pace with the growing threats to the marine environment, we must expand and improve on existing programs where appropriate.

With regard to the charge of overlap with existing programs, let me make two points.

First, by taking a very broad interpretation of existing laws, one might find authority for some of the activities proposed in this legislation. The fact is--the regional research called for in this bill is not now happening and is unlikely to happen without a legislative mandate and additional resources.

Second, we have revised the bill to give those agencies with the most closely related programs a clear role in the research program. NOAA will chair the Federal Oversight Board and is in a position to resolve issues of overlapping authority, should they arise. In addition, the Sea Grant State Program Directors will play a lead role in developing and managing the program and can assure the effective coordination of State Sea Grant activities with the overall regional program.

In conclusion, Mr. Chairman, there is growing evidence of threats to the quality of the marine environment. It is essential that we assess the seriousness and extent of this problem and consider appropriate response measures. An important first step in protecting the marine environment is to strengthen and expand marine research at the regional level. This effort is essential if we are to keep pace with the growing threats to marine environmental quality and assure that this resource is protected for future generations.

I hope you will join me in supporting this legislation and in working to improve our understanding of our rich, diverse marine resources.

Thank you, Mr. Chairman.

STATEMENT BY

DR. ALAN R. THOMAS
DEPUTY ASSISTANT ADMINISTRATOR FOR OCEANIC AND
ATMOSPHERIC RESEARCH
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY
AND THE
SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION
AND THE ENVIRONMENT
COMMITTEE ON MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES

JUNE 29, 1988

Mr. Chairmen and Members of the Subcommittees:

Thank you for this opportunity to present the views of the Department of Commerce on H.R. 4231, the "Marine Research Act of 1988."

As we have testified to the Subcommittees and others, there are serious problems in the marine and near-shore environment, including loss and modification of habitat, toxic contamination, eutrophication, and declining economic and ecological productivity.

While the underlying objective of H.R. 4231 -- to promote research related to the protection and preservation of the oceanic and near-shore environment -- is meritorious, the Department of Commerce strongly opposes the bill on three counts. First, as presently framed, H.R. 4231 would duplicate functions

and organizations already established both within the National Oceanic and Atmospheric Administration (NOAA), as well as in other Federal agencies. Second, the administrative structure proposed by the bill is burdensome and will result in an inordinate portion of appropriated funds being diverted for expenses that are not directly related to research. Finally, although regional in name, the number of participants legislated into the process of formulating the plan are more likely to result in a shipping list of efforts, rather than a cohesive strategy with appropriate priorities. There will never be the fiscal and intellectual resources to wage a full campaign on all fronts. The management structure proposed will lead to adversarial process for short-term "fixes" rather than a thoughtful plan addressing the long-term problems.

Let me address each of these three items briefly.

DUPLICATION OF ORGANIZATIONS AND FUNCTIONS

NOAA, as well other agencies such as the U.S. Geological Survey and the Environmental Protection Agency (EPA), conduct research that is central to the goals of H.R. 4231. These agencies take a national approach, yet each region is served by the problems addressed. H.R. 4231 proposes another suite of regional coordination that is both fixed and incongruous with other regional management structures including those of the National Weather Service, the National Marine Fisheries Service, and the National Sea Grant College Program.

A serious drawback to the regions proposed in H.R. 4231 is that they are fixed both geographically and in their management structure. In reality, what might make a logical regional grouping for trying to cope with one issue (say red tide) might be very illogical for another (such as a given industrial pollutant). If the research community were left unencumbered by fixed boundary conditions, it could tailor a regional approach to suit the problem being addressed.

Examples of organizational duplications are readily apparent in the structure and function of the Marine Research Coordination Board (MRCB), which is established by H.R. 4231. The MRCB is the central national office responsible for administering activities called for in the legislation and would overlap, both functionally and in its membership, with the National Ocean Pollution Planning Board (NOPPB). This latter group was established by the National Ocean Pollution Planning Act of 1978, and is housed in the Office of the Chief Scientist of NOAA. Proposed subsection 404(d) identifies twelve areas of investigation as within the purview of the MRCB -- ten of these already are within the purview of NOPPB. Proposed subsection 408(a) would place representatives from several Federal agencies on the Board -- many of which are represented on the NOPPB.

OVERHEAD COSTS

H.R. 4231 calls for the creation of separate boards for each region to administer the conduct of research and interpretive

activities. In addition, the bill creates an administrative organization at the national level (the Marine Research Coordination Board) to review and approve regional plans, and to serve as a contact point for reporting research findings to Congress and other Federal agencies. Each of these administrative units is empowered to hire staffs, contract for services, and purchase equipment. These costs could total several million dollars per year. This does not include the expenses of "volunteered" service in advisory and review committees. These funds and professional attention will not be available for conducting research. Better use of existing program capabilities could more efficiently and less expensively be applied to conduct the types of research envisioned by this legislation. Related activities, such as the compilation of annual reports, the development of management information systems, budget infrastructures, and outreach mechanisms could also be minimized by steering away from the temptation to create a whole new tier of managers.

FRACTIONATION OF RESEARCH EFFORTS

The broad participation of scientists, environmental managers, constituent groups, elected and appointed officials, and representatives of industry in a large and cumbersome multi-tiered management structure is not conducive to addressing long-term problems. More likely, it will lead to addressing the "squeakiest wheel," rather than the most serious issues. Furthermore, it might remove management flexibility that is

necessary for dealing with complex systems that are characteristic of our Nation's coastal zone.

NOAA and EPA have worked together successfully for a number of years on a wide range of activities directed to protection and preservation of the marine and near-shore environment. NOAA has provided scientific information and support, and EPA has been in the leading role in regulatory, enforcement and spill response efforts. H.R. 4231, if enacted, would make EPA responsible for managing research programs and facilities which overlap significantly with existing NOAA programs and facilities. The result would be to confuse research responsibilities, and create conflicts which do not now exist. NOAA sees no reason to change the balanced and effective working relationship it now enjoys with EPA.

Mr. Chairman, NOAA presently serves as a coordinating link between Federal research programs and the resource managers and regulatory agencies involved in prevention of and response to environmental degradation. When the need indicates, NOAA, in conjunction with other appropriate Federal agencies, has used its broad authority to establish appropriate programs and take necessary action. NOAA will maintain its role as the Nation's premier ocean science agency, furnishing to EPA and other regulatory groups the environmental information required for the development of sound ocean policy and marine resource management strategies.

In conclusion, while we are concerned about the range of problems in the marine and near-shore environment, we are convinced that H.R. 4231 is not the answer. It will not add to NOAA's ability to address coastal pollution issues. Rather, it will confuse the current coordination structure and unnecessarily duplicate existing NOAA programs. A better approach would be to utilize existing programs and authorities, including systems for planning and the conduct of research. This would give priority to addressing critical information needs within the Nation's oceanic and coastal waters. This approach, as opposed to the approach of H.R. 4231, will best address nationally significant coastal degradation problems in a fiscally responsible manner.

Thank you Mr. Chairman. This concludes my prepared statement; I would be happy to respond to any questions the Subcommittees may have.

STATEMENT OF
TUDOR T. DAVIES
DIRECTOR, OFFICE OF MARINE AND ESTUARINE PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON OCEANOGRAPHY
OF THE
COMMITTEE ON MERCHANT MARINE AND FISHERIES
U.S. HOUSE OF REPRESENTATIVES

June 29, 1988

Good afternoon. I am Tudor Davies, Director of the Office of Marine and Estuarine Protection of the U.S. Environmental Protection Agency (EPA). It is a pleasure to be here today to testify before you about H.R. 4231, the "Marine Research Act of 1988."

Over the last few months, representatives of EPA have appeared before the relevant House and Senate Subcommittees to testify as to the importance of our estuarine and near-coastal waters and about our activities in seeking to protect and restore this resource. We share your concerns over the state of our estuarine and near coastal waters, and we believe that well-focused and carefully planned marine research and monitoring plays an important role in developing effective measures to protect and maintain the quality of our coastal waters. Our estuaries and coastal waters are invaluable national assets, some of which are threatened by pollutant loadings, population pressures, and resource depletion. Continuation of both basic and applied research programs is necessary to better understand the intricacies of these ecosystems and to provide information to support more effective management and protection of these resources.

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Several comprehensive programs which seek to protect and restore our coastal and marine resources are ongoing within EPA. EPA's National Estuary Program (NEP) is an example of a geographic/site-specific approach to managing waterbodies. NEP began in 1985 and was given statutory authority under the 1987 amendments to the Clean Water Act. Three characteristics distinguish EPA's approach to addressing pollution in estuaries. First, we target basin-wide assessment of problems and causes. Second, we integrate the use of all available regulatory tools and cleanup techniques addressing point and nonpoint source pollution, land-use management, and coastal resources protection. Finally, we employ the concept of collaborative problem solving which includes, and utilizes, the resources of all relevant federal, State, and local government agencies as well as public interest and user groups. EPA provides the technical expertise and the organizational umbrella to bring together all the parties affecting and affected by near coastal water quality.

Currently, EPA has selected six estuaries to be in the NEP. These are: Buzzards Bay in Massachusetts; Narragansett Bay in Rhode Island; Long Island Sound in Connecticut and New York; Albermarle/Pamlico Sounds in North Carolina; San Francisco Bay in California; and Puget Sound in Washington State. We expect that the program will expand to include up to a total of about 12 estuaries of national significance by the end of FY 1988.

As I stated in my March 24 testimony before this Subcommittee, EPA began its Near Coastal Water Program as part of

Administrator Lee Thomas' strategic planning process in the fall of 1985. The Near Coastal Water (NCW) Initiative was an effort to develop a 10 to 15 year strategic plan for EPA to improve its management of NCW environmental quality. The Agency recognized that the unique features of these waters placed them at greater risks for degradation and thus in greater need of management attention.

In addition, EPA has intensified efforts at its own research laboratories to provide practical research products to help coastal managers solve problems. This new initiative is focusing on such research needs as characterization of point and non-point sources of pollution, assessment of exposure of living marine resources to toxic pollutants, and quantitative ecological risk assessments for managing near coastal waters. Additionally, monitoring methods will be developed to characterize the status of near coastal water ecosystems and measure the success of management actions.

As an agency charged with administering environmental protection laws, we recognize the importance of carefully focused and planned environmental research and monitoring to assess environmental trends and to identify the sources and to quantify the impacts of pollution. Well conceived and executed research and monitoring activities are especially important when dealing with such complex and variable environments as our coastal waters. In order to develop effective measures to protect these resources, it is first necessary to identify and

understand the scope, cause, and source of the problem. Research and monitoring efforts which are targeted on such questions thus play a vital role in formulating effective strategies to alleviate the environmental problems facing many of our near coastal waters.

I recently testified before a Senate Environment and Public Works Subcommittee on the marine research legislation sponsored by Senator Mitchell. As I stated at that time, and will again today, EPA opposes the establishment of the regional marine research centers. H.R. 4231 would duplicate existing federal and State programs and establish a cumbersome and costly administrative structure.

In the coastal environment there are biogeographic areas which have an integrity that is unrelated to political boundaries. Environmental research and monitoring information needs to be related to these natural units so that we manage resources on an ecosystem basis. EPA and NOAA recognize the need for comprehensive marine research and monitoring programs. I believe that at present there are strong technical capabilities in federal, state, and private institutions for conducting coordinated, region-specific marine research and monitoring activities. Coordination among federal, State, and private institutions in the marine environment is improving. For example, EPA and NOAA are presently working together to integrate the National Estuary and the Coastal Zone Management Programs in areas where the programs complement and can reinforce each other

in assisting States in managing critical coastal issues. Superimposing the proposed management structure over existing programs is unnecessary.

Also, it is not only critical that research needs, goals, and priorities in the coastal and marine environment be identified but that the research programs be held accountable to answering priority management questions. H.R. 4231 authorizes new money for marine research, but does not adequately address this concern. Evaluation of how research proposals answer those questions must be an integral component of a comprehensive research program to insure that the results will be of actual benefit to the coastal and marine environment. H.R. 4231 does not include criteria which will systematically assess how a research proposal addresses priority management questions. This is important not only in the treatment but in the prevention of environmental degradation in our coastal and marine waters.

This concludes my testimony, and I would be pleased to answer any questions you might have. Thank you for affording me the opportunity to provide you with EPA's views on marine regional research centers.

Testimony prepared by Kenneth M. Curtis for Merchant Marine and Fisheries Sub-Committee in favor of the "Marine Research Act of 1988," H.R. 4231. June 29, 1988

THE OPPORTUNITY TO APPEAR BEFORE THIS COMMITTEE TO TESTIFY IN FAVOR OF H.R. 4231; THE MARINE RESEARCH ACT OF 1988 IS GREATLY APPRECIATED.

CONGRESSMAN BRENNAN AND I SHARED THE PRIVILEGE OF SERVING THE PEOPLE OF MAINE AS THEIR GOVERNOR.

WE SHARED THEIR COMMITMENT TO PRESERVE MAINE'S UNIQUE ENVIRONMENT AND IT'S 3,500 MILES OF UNMATCHED COASTAL BEAUTY.

THE PEOPLE OF MAINE APPRECIATE THE FRAGILITY OF IT'S RICH NATURAL RESOURCES AND TAKE GREAT PRIDE IN THE FACT THAT THEIR STATE IS A LEADER IN STRONG ENVIRONMENTAL LEGISLATION.

DURING THE DECADE OF THE 1960'S, AMERICA TURNED IT'S LONG OVERDUE ATTENTION TO ENVIRONMENTAL PROTECTION.

IN MAINE, DEMOCRATIC AND REPUBLICAN LEGISLATORS, IN THE BEST EXAMPLE OF BIPARTISANSHIP, ENACTED SOME OF THE STRONGEST ENVIRONMENTAL LEGISLATION IN THE UNITED STATES.

THIS LEGISLATION HAS WITHSTOOD THE TEST OF TIME AND THE COURTS, AND CONTINUES TO BE STRENGTHENED.

IN SPITE OF ALL THAT HAS BEEN ACCOMPLISHED, MAINE PEOPLE ARE FEARFUL OF THE STRESS THAT THE PRESENT RATE OF GROWTH IS PLACING ON OUR COASTAL WATERS AND BEYOND; THAT THREATEN OUR BOUNTIFUL FISHERIES AND OUR WAY OF LIFE. ALTHOUGH MUCH OF MY TESTIMONY CONCERNS THE GULF OF MAINE, WE ALSO RECOGNIZE THAT IT IS NOT A PROBLEM UNIQUE TO MAINE.

THE COASTAL WATERS ON OUR ATLANTIC, PACIFIC AND GULF COASTS HAVE FOR CENTURIES BEEN OF IMMENSE VALUE TO THIS COUNTRY: FOR

THEIR FISHERIES AND MINERAL RESOURCES, FOR PROVIDING EFFICIENT TRANSPORTATION, AND FOR THEIR VARIED AND NUMEROUS AMENITIES. NO ONE WOULD DISAGREE THAT WISE MANAGEMENT AND CONSERVATION MEASURES ARE A NECESSITY IF THESE WATERS ARE TO RETAIN THEIR VALUE FOR FUTURE GENERATIONS. BUT THE FORMULATION OF RATIONAL POLICIES FOR MANAGING THESE WATERS CAN NEVER BE ANY BETTER THAN THE WELL-PLANNED BODY OF SCIENTIFIC KNOWLEDGE MADE AVAILABLE TO DECISION-MAKERS.

IT IS UNFORTUNATE THAT IN ALL TOO MANY INSTANCES THE QUALITY OF SCIENTIFIC INFORMATION RUNS FAR BEHIND THE PRESSURES BEING PLACED UPON THESE WATERS, PRESSURES WHICH CONTINUE TO INCREASE AT AN ALARMING RATE. EXAMPLES AROUND THE COUNTRY OF TROUBLED WATERS ARE MANY, INCLUDING SUCH NOTORIOUS EXAMPLES AS CHESAPEAKE BAY AND BOSTON HARBOR. FORTUNATELY, NOT ALL OF OUR COASTAL SEAS ARE IN THIS CONDITION; IN FACT, THE MAJORITY OF OUR COASTAL SEAS ARE BASICALLY HEALTHY, BUT WITHOUT FORESIGHT AND APPROPRIATE MEASURES, THEIR QUALITY WILL DETERIORATE, AND THE COST OF RESTORATION, IF SCIENTIFICALLY POSSIBLE, WILL BE STAGGERING.

THE HISTORY OF OUR HANDLING OF ENVIRONMENTAL ISSUES PLAINLY DEMONSTRATES THAT OUR TENDENCY HAS BEEN TO RESPOND TO CRISES, NOT TO ANTICIPATE THEM. THIS UNDERLYING ATTITUDE OF COMPLACENCY WELCOMES THE UNEXPECTED.

WE BELIEVE THAT WHILE THE WATERS IN THE GULF OF MAINE ARE NOT YET THREATENED BY THE LEVELS OF POLLUTANTS WHICH WE WATCH PLAGUING OTHER AREAS TO OUR SOUTH, WE CANNOT SIT IDLY BY AND ALLOW FATE TO DEAL A SIMILAR HAND.

THERE ARE ALREADY WARNING SIGNS AS CHARLES S. YENTCH, FORMER DIRECTOR OF THE BIGELOW LABORATORY FOR OCEAN SCIENCES, POINTED OUT AT THIS COMMITTEE'S HEARING ON SEPTEMBER 8, 1987, WHEN HE SAID:

> "THE SIGNS ARE ALL OUT THERE . . . SEA LEVEL RISE, POPULATION GROWTH ALONG THE COAST, RED TIDE OUTBREAKS, DRASTIC CHANGES IN FISH ABUNDANCE, TOXIC MATERIALS, ACID RAIN, ACID FOG, AND SO FORTH"

WE HAVE RECOGNIZED THE EARLY WARNING SIGNS, AND HAVE BEGUN TO ORGANIZE OUR SCIENTIFIC TALENT TO MEET THE CHALLENGE. THE ASSOCIATION FOR RESEARCH ON THE GULF OF MAINE WHICH HAS ADOPTED A CONSORTIUM APPROACH TO SOLVING THE MYRIAD OF RESEARCH PROBLEMS, IS SEEN AS THE MOST EFFECTIVE.

THIS CONSORTIUM IS COMPRISED OF 75 SCIENTISTS FROM THE UNIVERSITY OF MAINE, THE STATE DEPARTMENT OF MARINE RESOURCES, THE BIGELOW LABORATORY FOR OCEAN SCIENCES, AND THE MAINE GEOLOGICAL SURVEY.

THE MAINE MARITIME ACADEMY IS ALSO A MEMBER AND OPERATES THE ONLY U.S. DEEP-SEA RESEARCH VESSEL NORTH OF CAPE COD.

ARGO'S PRIMARY FOCUS IS ON THE RICH WATERS OF THE GULF OF MAINE.

WE IN MAINE, HAVE LEARNED FROM THE MISTAKES OF THE PAST AND FROM OTHERS THAT COMPLACENCY OVER OUR SEEMINGLY PRISTINE WATERS IS ASKING FOR TROUBLE. IT IS NOW CLEAR THAT IT IS TIME FOR A WELL-COORDINATED REGIONAL APPROACH TO ADDRESSING TIMELY RESEARCH ISSUES, AN APPROACH NOT NOW POSSIBLE UNDER EXISTING FUNDING MECHANISMS.

I WOULD INVITE THE MEMBERS OF THIS COMMITTEE TO REVIEW THE SUCCESS OF THE GREAT LAKES WATER QUALITY AGREEMENT, WHICH CREATED A SMALL OFFICE UNDER THE UNITED STATES CANADIAN JOINT COMMISSION TO COORDINATE STATE, FEDERAL, AND CANADIAN EFFORTS IN THE MASSIVE CLEAN UP EFFORT OF THE GREAT LAKES. CLEARLY, THE CONCEPT OF MARINE RESEARCH CENTERS WOULD PROVIDE THE NECESSARY COORDINATING AND PLANNING VEHICLE, BUT IT WOULD ALSO HAVE SOME FUNDS TO CONDUCT RESEARCH IN THOSE AREAS NOT BEING ADDRESSED BY OTHER ON GOING RESEARCH ACTIVITIES.

THE MARINE RESEARCH ACT OF 1988 WOULD ALSO SUPPORT BOTH BASIC AND APPLIED RESEARCH. THIS MAY BE ONE OF THE MORE IMPORTANT, YET LEAST TOUTED ASPECTS OF THE LEGISLATION: IT ENCOURAGES A TEAM EFFORT AMONG AGENCIES, SUCH AS THOSE IN STATE AND FEDERAL GOVERNMENT CONCERNED WITH FISHERIES AND POLLUTION, WITH THE BASIC RESEARCH EFFORTS OF UNIVERSITIES AND PRIVATE LABORATORIES. THERE DOES NOT NOW EXIST ANY SUCH PROGRAM WHICH WOULD ENCOURAGE SUCH COLLABORATION IN SO VIGOROUS AND COORDINATED A FASHION.

THIS IS UNFORTUNATE, SINCE IT IS THE MARRIAGE OF BASIC AND APPLIED RESEARCH THAT YIELDS FRUITFUL RESULTS. FOR THE TWO APPROACHES TO RESEARCH, BASIC AND APPLIED, TO CONTINUE ALONG SEPARATE PATHS, FULLY EXPECTING, EVEN HOPING, THAT SOMEDAY THE RECONDITE FINDINGS OF BASIC RESEARCH WILL MEET THE NEEDS OF A VERY IMPORTANT AND APPLIED PROBLEM, IS A GAMBLE THAT WILL NOT ALWAYS PRODUCE A WINNER -- AT LEAST NOT ON TIME SCALES IN SYNC WITH THAT OF THE MOUNTING PROBLEMS IN OUR COASTAL WATERS.

AS ONCE ISOLATED PROBLEMS ARE BEGINNING TO ATTRACT PUBLIC ATTENTION, OUR PRESENT SCIENTIFIC KNOWLEDGE OF THE GULF OF MAINE IS WOEFULLY INADEQUATE TO WISELY MANAGE THIS RESOURCE. MUCH OF OUR CURRENT RESEARCH ACTIVITIES SEEM TO BE DIRECTED TOWARD SPECIFIC PROBLEMS WITH LESS BROADLY DEFINED OBJECTIVES.

WHILE THESE EFFORTS NEED TO CONTINUE, THEY CONTRIBUTE LITTLE TOWARD UNDERSTANDING THE UNIQUE ECOSYSTEMS OF THE GULF OF MAINE, AND I EXPECT OF OTHER COASTAL REGIONS OF THE UNITED STATES, AS WELL.

IT IS IRONIC THAT WHILE ADVANCES ON MANY SCIENTIFIC FRONTS HAVE BEEN MADE IN THE LAST TWO DECADES, INSTEAD WE STILL HAVE ONLY THE CRUDEST MODELS FOR PREDICTING THE PROCESSES OPERATING IN COASTAL MAINE ECOSYSTEMS SUCH AS THE GULF OF MAINE. YET, THE LAST FEW YEARS HAVE WITNESSED AN EXPLOSION OF TECHNOLOGY WHICH FACILITATES THE RAPID ACQUISITION AND DISSEMINATION OF AN ENORMOUS AMOUNTS OF ~~DEPT.~~ DATA

WE STAND AT THE THRESHOLD IN THESE EXCITING TIMES OF APPLYING THESE MODERN TECHNOLOGICAL MARVELS FOR ALL THE GULF OF MAINE FROM SATELLITES WHICH CAN OBSERVE OCEANOGRAPHIC PROCESSES FROM SPACE, TO FLOW CYTOMETERS, WHICH EXAMINE THE PROPERTIES OF INDIVIDUAL MICROSCOPIC PLANKTON CELLS AT A RATE OF 20,000 PER SECOND.

BUT, IN SPITE OF ALL THIS TECHNOLOGY, RANDOM APPLICATIONS OF THE GULF ECOSYSTEM WILL NOT IN AND OF ITSELF GUARANTEE SUCCESS. WHAT IS NEEDED MOST OF ALL IS A PLANNED, WELL-COORDINATED APPROACH TO THE RESEARCH EFFORT.

THE VALUE OF BASIC RESEARCH CANNOT BE OVERSTATED -- NOR CAN IT EASILY BE DEFINED. EACH NEW BIT OF SCIENTIFIC INFORMATION HAS A VALUE WHICH IS IMPOSSIBLE TO MEASURE AGAINST TODAY'S STANDARDS -- THE FUTURE PUZZLES IT MIGHT SOLVE HAVE YET TO BE EVEN THOUGHT OF; ITS VALUE SIMPLY CANNOT BE PREDICTED.

SCIENTISTS KNOW FULL WELL THAT GROWING PRESSURES ON THE ENVIRONMENT WILL CONTINUE. AND HEREIN RESTS THE INHERENT BEAUTY OF MELDING BASIC AND APPLIED SCIENCES. WE KNOW THAT PRESSURES WILL MOUNT, THAT NEW PROBLEMS WILL APPEAR, AND THAT THE NEED FOR FUNDAMENTAL SCIENTIFIC INFORMATION WILL BECOME MORE PRESSING. WE KNOW THAT INEVITABLY THERE WILL BE AN AS-YET-UNCLEAR NEED, AND THAT WE MUST BE READY TO FACE IT. THE QUESTION IS ONLY ONE OF HOW TO STRUCTURE THE APPROACH.

THE GOVERNMENT SPENDS HUNDREDS OF MILLIONS OF DOLLARS EACH YEAR ON WHAT SOME MIGHT CONSIDER TO BE ESOTERIC SCIENTIFIC FOLLY. AND AS FUNDING BECOMES TIGHTER THE NEED TO JUSTIFY SCIENTIFIC RESEARCH BUILDS AND NEW STRATEGIES ARE DEVISED TO MAKE THEM MORE PALATABLE AND HENCE FUNDABLE. RECENTLY NEWSWEEK MAGAZINE TOLD OF THE TREND TOWARD BIG SCIENCE PROJECTS, PROJECTS ROMANTIC ENOUGH TO ATTRACT ATTENTION AND THE PUBLIC'S IMAGINATION, BUT WHICH SWALLOW UP MONEY AND STARVE THE SMALLER-SCALE RESEARCHERS. THE TREND IN MARINE ENVIRONMENTAL SCIENCE IN THIS COUNTRY MUST BE CAREFUL NOT TO FOLLOW SUCH A LEAD.

SCIENCE ADVANCES IN SMALL STEPS AND FROM MANY, INDEPENDENT MINDS. THE TREND WITH RESPECT TO RESEARCH AND MONITORING IN OUR COASTAL WATERS SHOULD BE TOWARD THE LOCAL, DISCRETE AND MANAGEABLE-SIZED RESEARCH PROJECTS.

~~WHILE ADVANCES ON MANY SCIENTIFIC FRONTS HAVE BEEN MADE~~ IN ~~THE LAST TWO DECADES, WE STILL HAVE ONLY THE CRUDEST MODELS FOR INTERPRETING AND PREDICTING THE PROCESSES OPERATING IN COASTAL MARINE ECOSYSTEMS~~. UNTIL SUCH AN EFFORT IS MOUNTED, PROGRESS WILL BE SLOW. THE NEED, THEREFORE, FOR COMPETENTLY COORDINATED RESEARCH PLANS, WHICH HAVE BEEN CAREFULLY THOUGHT THROUGH AND EFFECTED AT THE LOCAL LEVEL, ARGUES FOR THE CONCEPT OF INDEPENDENT, REGIONAL RESEARCH CENTERS.

NO MECHANISM PRESENTLY EXISTS THAT HAS THE CAPABILITY TO COORDINATE FEDERAL RESEARCH ACTIVITIES WITH THOSE OF THE STATE ORGANIZATIONS AND PRIVATE INSTITUTIONS. IN MY OPINION, THERE IS NO MECHANISM THAT COULD IMPARTIALLY AND EFFICIENTLY HARNESS EXISTING CAPABILITIES.

WITHOUT SOUNDING OVERLY CRITICAL, EXPERIENCE TELLS ME THAT THE NATURE OF EXISTING GOVERNMENTAL AND PRIVATE ENTITIES IS ONE OF BEING UNDERFUNDED AND OVER TAXED BY SCIENTIFIC AND ADMINISTRATIVE DEMANDS LEAVING PRECIOUS FEW RESOURCES TO ADDRESS THE TYPE OF LONG RANGE PLANNING THAT IS NECESSARY.

A SYSTEM OF INDEPENDENT RESEARCH CENTERS IS THE ONLY REALISTIC VEHICLE TO DEVELOP AN OVERALL LONG-RANGE COORDINATED RESEARCH PLAN. THROUGH SUCH A MECHANISM AND WITH THE EXPENDITURE OF FEW ADDITIONAL RESOURCES, WE CAN EXPAND AND IMPROVE RESEARCH AND MONITORING ACTIVITIES.

THE REGIONAL APPROACH WILL ADD TO EFFICIENCY AND EFFECTIVENESS. ENVIRONMENTAL CONDITIONS AND THE COASTAL ESTUARIES WITH THEIR RELATED ECOSYSTEMS DIFFER FROM AREA TO AREA. REGIONAL AND LOCAL INPUT IS ESSENTIAL TO PLANNING AND

COORDINATING ACTIONS. STATE GOVERNMENT, STATE LEGISLATURES, AND PUBLIC SUPPORT MUST BE ADDED TO FEDERAL INITIATIVES IF WE ARE TO BE SUCCESSFUL.

IN THE GULF OF MAINE, WE ALSO NEED TO COORDINATE EFFORTS WITH CANADIAN PROVINCIAL AND FEDERAL ACTIVITIES TO PRESERVE A VALUABLE COMMON RESOURCE THAT WE SHARE. AS AN EXAMPLE THE GOALS OF SUCH EXISTING AGENCIES AS NOAA AND EPA ADDRESS IN SOME WAYS THOSE FOCUSED UPON HERE, THEY PLAINLY ARE NOT STRUCTURED TO RESPOND TO THE GROWING NEEDS BEFORE US. THEY CANNOT, WITHIN A MULTI-STATE REGION, COORDINATE RESEARCH AND MONITORING PROGRAMS AMONG THAT REGION'S RESEARCH INSTITUTIONS. THEY ARE NOT STRUCTURED TO AWARD RESEARCH MONIES IN A MERIT BASED, COMPETITIVE MANNER AND THEY ARE NOT IN A POSITION TO FORMULATE LONG-RANGE RESEARCH PLANS WHICH MOBILIZE THE STATE AND PRIVATE SECTOR. THESE ARE ESSENTIAL CHARACTERISTICS OF THE PROPOSED LEGISLATION.

THE CLEAREST DANGERS IN CREATING ANY NEW GOVERNMENT-SPONSORED ORGANIZATION ARE TOP-HEAVY ADMINISTRATIONS, POTENTIAL DUPLICATION OF EXISTING PROGRAMS, AND THE INEFFICIENT USE OF LIMITED RESOURCES AND EQUIPMENT. THE MARINE RESEARCH ACT OF 1988 HAS BEEN CREATED TO ADDRESS EXACTLY THOSE CONCERNS.

ONLY 1/6 OF THE 3 MILLION DOLLARS PROPOSED MAY BE SPENT ON ADMINISTRATION, WHILE THE REMAINING 5/6 MUST GO FOR RESEARCH AND MONITORING GRANTS. THE BILL IS ALSO DESIGNED TO ELIMINATE DUPLICATION THROUGH ITS COORDINATION WITH RELEVANT AGENCIES, AND IS DESIGNED TO MAXIMIZE THE USE OF LIMITED RESOURCES AND EQUIPMENT.

LOCAL RESEARCH PROJECTS SHOULD BE STREAMLINED FOR EFFICIENCY, AND WHICH RETAIN THE INDEPENDENT IMAGINATIONS OF OUR COUNTRY'S SCIENTISTS. WE ALSO MUST GUARD AGAINST BUILDING UP THE BUDGETS AND ADMINISTRATIVE STRUCTURES TO ALREADY UNWIELDY AGENCIES AS THE ANSWER. BIGGER SIMPLY IS NOT BETTER.

IN SUMMARY, THE STRENGTH OF THIS LEGISLATION IS FROM ITS CONCENTRATION ON COORDINATED AND PLANNED RESEARCH WHICH IS DIRECTED TO THE DIFFERING CONDITIONS AND NEEDS OF THE REGIONS. ITS FUNDING IS RESERVED FOR RESEARCH WITH A CAP PLACED ON LESS PRODUCTIVE ADMINISTRATIVE EXPENSES.

WHILE THE PAST AND THE RESILIENCY OF OUR COASTAL ECOSYSTEMS HAS BEEN FORGIVING, WE MUST FACE THE FACT THAT THE FUTURE WILL NOT. THROUGH MASSIVE DEFICITS, WE IN THE UNITED STATES ARE PASSING ALONG A HUGH DEPT TO FUTURE GENERATIONS. WE SIMPLY MUST NOT ADD IRREVERSIBLE ENVIRONMENTAL DAMAGE TO THAT DEBT, NOR DENY FUTURE GENERATIONS THE OPPORTUNITY TO ENJOY A QUALITY OF LIFE THAT YOU AND I HAVE KNOWN.

I URGE PASSAGE OF THE H.R. 4231, WITH THE HOPE THAT WE WILL HAVE THE WISDOM TO INVEST ADDITIONAL FUNDS FOR PRESERVATION OF OUR COASTAL RESOURCE RATHER THAN THE HUGH AMOUNTS THAT WILL BE EXPENDED AFTER IT IS TOO LATE.

THE OCEANIC SOCIETY

EDUCATION • RESEARCH • CONSERVATION

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June 29, 1988

Statement of Boyce Thorne Miller
On Behalf of
The Oceanic Society
Before the
Subcommittee on Oceanography and the
Subcommittee on Fisheries and Wildlife Conservation
and the Environment
of the House Committee on Merchant Marine and Fisheries
Concerning
The Marine Research Act of 1988 -- H.R.4231

I am Boyce Thorne Miller, Staff Scientist of the Oceanic Society. The Society is a 45,000 member non-profit organization dedicated to protecting the oceans for the people and wildlife that depend on them for life, livelihood and enjoyment. Through education, research and conservation, the Society promotes understanding and stewardship of marine and coastal environments.

I appreciate the opportunity to testify today at this hearing as your Subcommittees examine the seriousness and extent of threats to the environmental quality of marine and near-coastal waters, and whether H.R. 4231, the Marine Research Act of 1988, provides an appropriate governmental response to the situation. This hearing provides an invaluable and timely opportunity to "sound the alarm," to educate decision makers and the public at large, and to compel actions that are needed to protect, conserve and restore our marine and near-coastal waters.

The Marine Research Act offers a unique and crucial opportunity to respond to the rising crisis in our coastal waters by coordinating marine research efforts on a regional scale. The Oceanic Society appreciates the leadership role your Subcommittees have taken by convening this hearing on H.R. 4231.

The oceans, though vast and covering over seventy percent of our planet, are a vulnerable and complex environment. Numerous unique and important species live in or depend upon the oceans. The oceans are this planet's primary life-support system. They provide most of our oxygen, moisture and weather patterns. We count on the seas for food, trade, recreation and commerce. Without healthy oceans, life as we know it would end.

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CONTRIBUTIONS ARE TAX-DEDUCTIBLE

Yet, as discussed in more detail in subsequent portions of my testimony, there is substantial and growing evidence which shows that ocean and coastal resources are being mismanaged and abused. Far too often, decisions involving these resources are made to benefit narrow, short-range special interests, with disregard for or inadequate scientific understanding of potential adverse, long-term consequences. In recent years there has been an alarming increase in the degradation of near-coastal waters, where marine life is more plentiful. Much less is known about the deeper ocean, but there are strong signs of damage there, too.

In companion hearings related to similar legislation introduced in the Senate, the gravity of the current state of ill-health of our nation's marine environs was acknowledged by ourselves, other private organizations, and the Federal agencies most heavily involved in managing our coastal waters. Several of those witnesses are participating in this hearing as well. There is nearly unanimous agreement that research and management efforts to date have not been effective in reversing the increasing degradation of marine and coastal waters. While it needs to be recognized that a large body of high quality research has given us a better understanding of the complexity of environmental changes resulting from various types of pollution, it is also true that as many questions have been revealed as have been answered. An extensive, in-depth research effort is still needed to enable us to better comprehend and predict system-wide responses to pollution.

Perspectives on the Problem

A. National Studies and Reports

Within the Federal government, several reports prepared in recent years by agencies represented at this hearing reinforce the need for research and action to protect our marine and coastal areas. In 1985, the Environmental Protection Agency initiated its "Near Coastal Waters (NCW) Strategic Planning Initiative," a multi-year effort to maintain and enhance near coastal water environmental quality. As the first stage of the NCW initiative, EPA's Office of Marine and Estuarine Protection released a "Strategic Options" paper in August, 1986 that substantiates the urgent situation we are facing. Quoting from the paper's introduction (footnotes omitted):

> Degradation of the near coastal water environment has become a critical national problem. The ecological, economic, recreational and aesthetic integrity of near coastal water systems in the

> United States is threatened daily by the cumulative impacts of a multitude of activities within the coastal drainage basins, in the near coastal waters, and on the oceans. Portions of near coastal water and shore habitats in every geographic region of the country and in every coastal state have been found to be degraded to a moderate or severe degree.

More recently, Congress' Office of Technology Assessment (OTA) issued a report titled Wastes in Marine Environments (April 1987), with its principal findings being "that estuaries and coastal waters are in deep trouble around the Nation, and that more coordinated waste management efforts are needed in many areas." While the OTA report found that "the health of the open ocean generally appears to be better than that of estuaries and coastal waters...," that finding contains an important qualification, i.e., that "considerable uncertainty still exists, however, about the ability to discern impacts, particularly long-term ones, that may have occurred in the open ocean."

In October, 1987, the National Oceanic and Atmospheric Administration's (NOAA) Estuarine Programs Office released a report titled NOAA Estuarine and Coastal Science Framework to provide long-term scientific direction for addressing four critical estuarine and coastal ocean problems: freshwater inflow and circulation problems; toxics, nutrients, and pathogens; habitat degradation; and declines in living resources. Based on its examination of those problem areas, the report's introduction notes that:

> The evidence clearly indicates that the health of our estuaries is declining. It is time to re-examine what should be done to conserve one of the Nation's most valuable resources. Unfortunately, the effects of human activities and natural changes to our estuarine and coastal environment are not well understood.

In addition to these government studies, two non-governmental reports merit special mention as part of any national perspective on the health of ocean and coastal environment. Published in 1986 by the Coast Alliance, an umbrella organization comprised of representatives of most of the Nation's major environmental groups, And Two if by Sea: Fighting the Attack on America's Coasts is both a primer and a guide for action. And Two if by Sea provides persuasive evidence that our coastal areas are in trouble, with special emphasis on the growing threats caused by coastal hazards (especially ill-conceived development in high-risk areas), coastal pollution, energy and minerals development, and ocean dumping.

A comprehensive report titled Saving our Bays, Sounds and the Great Lakes: A National Agenda, released in April, 1988, by Save the Bay, Inc. of Rhode Island, resulted from a national conference of conservation groups, including my organization. It describes the dire state of health of our nation's estuaries and recommends important steps that need to be taken to control and prevent water pollution. and suggests a five-point "National Agenda" for action. We wholeheartedly endorsed the report's findings and recommendations, several of which will require comprehensive research and monitoring programs to implement.

While the principal focus of all of these reports is on near-coastal waters, as noted earlier, our inadequate understanding of oceanic processes and impacts of human activities in the deeper ocean are cause for caution. In important respects, we can use estuaries as mesocosms -- experimental subsets of the whole ecosystem -- of the open ocean. Just as scientists use mesocosms to predict ecosystem responses to specific stresses in estuaries, we can extrapolate the increasing stresses in estuaries to the oceans. Because of the tremendous size of the open ocean, estuarine-type responses to stress or pollutants normally take much longer to be measured. But that is only a function of time. Given the difficulties of responding to crisis situations in smaller, estuarine systems, the problem of protecting the open ocean becomes orders of magnitude more serious if we wait until similar crisis situations become apparent. It is our hope that research proposed under H.R. 4231 will take the deeper ocean concerns into consideration.

B. Major Sources of Marine and Coastal Pollution

The above referenced reports, as well as other recent research, indicate that a wide array of sources are affecting the quality of the nation's coastal and estuarine environments. Theses major sources include point source discharges, non-point source pollution, and physical or hydrological modifications to the shoreline or estuarine system. Other important sources of pollutants include ocean dumping of sewage sludge, dredge spoil and industrial waste and vessel source pollution. The resulting combination of effects of these sources on the coastal and estuarine environment has been classified into five major "national environmental problems" by the EPA. These are: (i) toxic contamination; (ii) eutrophication; (iii) pathogen contamination; (iv) habitat loss and alteration; and (v) changes in living resources.

Point-source contaminants enter the marine ecosystem through discharges from municipal sewage treatment plants, industrial and commercial facilities and combined sewer overflows (CSOs). Municipal point sources are major contributors of biochemical oxygen demand, pathogens, nitrogen, and oil and grease.

oxygen demand, pathogens, nitrogen, and oil and grease. Industrial dischargers are the dominant sources of many organic chemicals and heavy metals, accounting for about 90 percent or more of the inputs of cadmium, mercury, and chlorinated hydrocarbons.

Non-point sources of pollution include runoff from cities, industrial sites, forestry, mining, and farmland, leachate from hazardous waste storage sites and landfills and atmospheric deposition. The varying sources of non-point source pollution generally contribute a large share of nitrogen and phosphorus, fecal coliform bacteria, suspended solids, oil and grease, lead, chromium, pesticides and chlorinated hydrocarbons. While information on the extent of non-point source pollution is limited, the resulting effects are generally considered more pervasive than point sources discharges.

While not a "pollutant" in the classic sense of the word, physical and hydrological modifications are another serious threat to the integrity of coastal and estuarine environments. The activities which result in altering or destroying habitat include dredging of channels, ports and marinas, draining and filling of wetlands, disposal of dredged materials, construction of dams, levees, and other flood control structures, shoreline, residential and commercial development, and diversions of fresh water for irrigation and water supply. Apart from the direct destruction of habitats, physical and hydrological modifications also can destroy the coastal environment's (e.g., wetlands) other functions, such as the retention of sediments and nutrients.

These pollutant inputs are regulated by differing levels of government and different agencies under a plethora of laws and regulations. While EPA has the primary responsibility, their current approach is on a permit-by-permit basis and lacks a comprehensive approach. Given the complexity and breadth of the above inputs into the marine environment, a comprehensive approach to the management of waste inputs which focuses on all environmental threats to specific water bodies and regional areas is necessary. However, without specific changes in the current programs, and absent a national policy on the protection of the marine and coastal environment, a comprehensive management system is unlikely. It is our hope that research and monitoring under the Marine Research Act could and would contribute to the formation of such a national policy and comprehensive management system.

C. Regional Perspectives

Several indicators of marine environmental quality point to deteriorating conditions in the coastal marine ecosystems of this country. Increases in (1) episodes of low oxygen concentrations

in the water column, (2) fish and shellfish diseases and anomalies, (3) contamination of tissues by heavy metals and organics, (4) phytoplankton (algal) blooms, (5) habitat loss -- especially loss of wetlands, (6) reproductive problems among birds dependent on the marine environment, (7) changes in the benthic community structure, including species diversity of bottom dwelling animals and plants, and (8) closures of shellfish and fishing areas for human health reasons are symptomatic of a multitude of anthropogenic insults accumulating in our coastal waters.

Though the symptoms are often the same, the particular problems causing marine ecosystem degradation may differ from location to location. For this reason, many researchers and regulators advocate a regional approach to trying to solve the problem of coastal pollution. This avoids the problems of inadequate funding and differing, sometimes opposing, strategies which would occur on local levels, but allows approaches which respond to the particular hierarchy of problems experienced in each region.

To illustrate this regional view of the U.S marine and coastal environment, I would like to highlight several estuaries and coastal regions -- though by no means all -- and examine some of their particular problems:

The Gulf of Maine includes the most pristine section of coastal waters to be found along the east coast of the U.S. However, signs of degradation, including increased turbidity, sediment contamination, algal blooms, local anoxia, and localized changes in the benthic community suggest cause for concern. Certain algal blooms have even been found to aggravate the acid rain/acid fog problem. All these changes suggest growing pollution from land drainage aggravated by increased development, and small scale industrial pollution, plus intensive municipal and industrial outfall in the south (i.e. Boston Harbor). It also appears, though, that PAH-contaminated sediments result as well from atmospheric transport of the pollutants.

Massachusetts Bay and Cape Cod Bay, which are part of the Gulf of Maine regional system, are experiencing even greater stress exerted by the urban and industrial development around Boston. High incidences of tumors, disease and structural anomalies have been found in fish and shellfish populations, particularly associated with sediments containing high concentrations of toxics in the vicinity of sewage and industrial discharge. Undertreatment of municipal sewage and indiscriminate discharge of toxic industrial byproducts are the major culprits in this area. The impact on humans in this region is felt primarily by the commercial and recreational fisheries and other recreational interests, with reduced fish and shellfish

populations, contaminated and diseased fish and shellfish, and closures of shellfish areas.

Narragansett Bay in Rhode Island is another important fishing and recreational area which is feeling the impact of increased urban and residential development as well as effects of a long history of industrial pollution in rivers feeding the Bay. Urban runoff and fallout from air pollution are currently two of the most potent sources of contamination. Concentrated blooms of one or more species of phytoplankton (algae), local anoxia and areas of sediments heavily laden with heavy metals and toxic organics are characteristic symptoms of pollution experienced in this estuary. Shellfishing is frequently interrupted by bed closures and both fish and shellfish catch are down. The offshore fisheries also depend on this estuarine system as it is an important nursery ground.

The Long Island Sound/New York Bight area is considered the area with the most voluminous and concentrated urban and industrial outfalls. Massive algal blooms and periods of oxygen depletion over large areas of bottom waters have become common occurrences off the New York and New Jersey coast, and fish and shellfish kills have sometimes resulted. These are alarming signs of environmental degradation, especially when added to stock depletions, diseases and physical anomalies, and high levels of tissue contaminants (heavy metals and toxic organics) in fish and shellfish. Furthermore, benthic communities have experienced large long-term changes with few species surviving in the most concentrated outfall zones where sediments are laced with excessively high concentrations of toxics.

Aggravating the Bight's problems caused by urban discharge and runoff are the deposition of dredge spoils and the dumping of sewage sludge at designated off-shore sites. Sewage sludge dumping at the "12-Mile Site" off New Jersey, which ended only this past December, is responsible for significant degradation of that area. While the transfer of sludge dumping to the "106-Mile Site" has provided a politically expedient short-term solution to managing that hazardous waste, reports of threats to and depletion of fish stocks in traditional fishing grounds in the vicinity of the 106-Mile Site raise serious questions about the wisdom of using the oceans as a sewer. Needless to say, fishing, recreation, and human health are all threatened in this region, as is emphasized by numerous fish, shellfish and beach closings.

The Chesapeake Bay is another infamous area experiencing severe symptoms of pollution. Periods of low oxygen concentration, extensive microalgal blooms and loss of the submerged aquatic vegetation (SAVs) are changes which have been well publicized. The effects on fisheries (e.g., rockfish) and shellfisheries (especially oysters) have been devastating as

species become diseased or depleted. Agricultural and urban runoff and atmospheric deposition have been identified as major pollutant sources. Although regulatory efforts have begun, improvements in environmental health have not yet appeared and the threat to this ecosystem remains ominous and immediate.

The southeast coast, as exemplified by Pamlico and Albemarle Sounds, is affected primarily by land runoff, residential development and atmospheric deposition of nitrogen. These result in eutrophication of coastal waters as evidenced by algal blooms followed by incidences of low oxygen as the algae decompose. Nutrient enrichment is accompanied by pesticide contamination from agricultural and residential areas draining into rivers and estuaries, with toxic threats to the biota. Submerged seagrass beds are beginning to disappear and fish populations are experiencing disease and depletion.

The Gulf of Mexico is a very large region experiencing marine ecosystem degradation resulting from several factors which are more prevalent there than in other coastal regions. Point source discharges are dominated by the petrochemical and chemical facilities which proliferate in the region. This, combined with general urban discharge and relatively shallow waters and poor circulation, has caused an accumulation of environmental hazards resulting in extensive occurrences of low oxygen concentrations and depletions and closures in the recreational and commercial fisheries. Combined with toxic organic chemical pollution, large inputs of nutrients from agricultural runoff from around the Gulf and draining in from the heartland of American agriculture result in eutrophication contributing to low oxygen levels and increased incidences of red tides (microalgal blooms).

Habitat degradation in the Gulf is exemplified by a loss of wetlands which proceeds at an alarming pace -- averaging 50 sq. miles lost each year, and amounting to as much as 80% of the total annual wetland loss in the nation. Dredging and filling operations and freshwater diversion combine with rising sea levels to effect this wetland loss. Marine dependent birds in the Gulf region have been plagued with reproductive difficulties symptomatic of pollution from heavy metals and toxic organics. These maladies, combined with destruction of breeding habitats, have resulted in bird population depletions, including the extinction of the Brown Pelican from this region.

San Francisco Bay, which is ringed by urban development, exhibits most of the maladies exhibited by eastern urban estuaries. In addition, this estuary is affected by freshwater diversions, particularly during spring months when freshwater flows are crucial for fish migration and spawning. The diversion of water for human consumption and utilization has resulted in increased salinities and salt water intrusion, loss of wetlands,

and reduced flushing and circulation which compound the effects of urban discharge. Massive reductions in fish populations due to increasingly unfriendly environmental conditions, fish and shellfish disease and structural anomalies, changes in benthic community structure and increased turbidity are attributed to effects of urban discharge and runoff, plus drainage from agricultural lands via rivers feeding the Bay.

Puget Sound in Washington State is a large estuary with intense pollution problems centered around the urbanized portion of the shore which includes Seattle, Tacoma and Everett. Toxic hot spots and areas of eutrophication are found around points of municipal and industrial discharge and at the mouths of industrialized rivers feeding the Sound. Problems are especially intense in some of the numerous embayments and inlets. Hundreds of municipal and industrial pipelines currently discharge wastes into the Sound, and dredge spoil deposition has aggravated the problem in some areas. Non-point source runoff from commercial forest lands and agriculture add to the problem of urban outfalls. As in other urban coastal areas, fish disease, shellfish bed closures and algal blooms are symptomatic of an ecosystem going awry.

The coastal waters of Alaska feel the impacts of a few large ocean and land based industries. The Gulf of Alaska is impacted by the forestry industry due to runoff and transportation of logs, and it is threatened by the potential of catastrophic oil spills from tankers transporting oil. The Bearing Sea is a prime fishing area and as such is subject to pollution from disposal of fish-processing wastes. It is also affected by oil spills and discharges from mining and dredging operations. The Arctic region marine systems are especially threatened by on and offshore oil development.

The Great Lakes have experienced all the symptoms of degradation due to point and non-point source pollution common to coastal estuaries in developed areas of the country. One source of pollution especially acute in this region is atmospheric deposition of nitrogen, acid and toxics from air pollution. Regionally focused (international as well as interstate) research and management efforts have been stronger here than in other areas and might serve as an example to other regions trying to develop plans in accordance with the Marine Research Act. This is not to say they've done it all, but they are at a more advanced stage of regional coordination. We support the inclusion of this region in the Marine Research Act.

Evaluation of the Marine Research Act

A. The Marine Research Act does not duplicate existing programs.

In testimony before the Senate Subcommittee on Environmental Protection, NOAA and EPA attested to the severity of the environmental degradation in our coastal waters, and agreed wholeheartedly with the need for extensive research to help better understand the complexities of these stressed systems so that meaningful regulations can be implemented before it is too late. In contrast with those statements,though, they claimed that no new funds and no new programs are needed. In particular, they opposed the Marine Research Act because they claimed to already have programs in place which address the purposes of the bill. For example, Sea Grant was cited as a program already addressing regional issues and capable of expansion to encompass all the functions of the Marine Research Act.

In our view, Sea Grant has its own special important mission that is complimentary to but not duplicative of the Regional Centers proposed under H.R. 4231. Sea Grant, with its state focus, performs a valuable function and it should be commended for past and ongoing successes. Furthermore, the program should be given considerably more financial backing, and funding for the Marine Research Act should in no way jeopardize future funding for Sea Grant. A reorientation toward more regional concerns might reduce the effectiveness with which Sea Grant research addresses state and local marine management questions. Doubtless some of these issues have regional implications and vice versa. However, to us that suggests a potential cooperative approach to the two programs, rather than a union of the two into one.

The Senate version of the Marine Research Act has been amended to give Sea Grant a joint role in determining the direction of each of the Regional Centers and to provide for the sharing of resources and facilities when that would improve efficiency. This seems to us to be an appropriate juxtaposing of the respective programs, so as to foster coordination and cooperation and prevent duplication. We would hope that keeping the two programs coordinated but distinct would encourage full funding of both.

B. A strong regional approach to coastal pollution problems is needed.

Many scientists have called for a regional approach to coastal research and regulation, because the various marine provinces have differing hierarchies of anthropogenic stresses and system responses to those stresses vary with regional differences in the physical and biological environment. Regional

centers could concentrate their research programs in areas most appropriate to their own set of problems. Examples (by no means all inclusive) include the following: point source pollution and freshwater diversion in the North Pacific region; hydrocarbon pollution and offshore drilling in the Southern California Bight region; petrochemical industrial outfall, dredge and fill operations and riverine input in the Gulf of Mexico; non-point source pollution and coastal development in the South and Mid-Atlantic Bights; municipal sewage outfall and dumping in the Greater New York Bight; residential development and point source pollution in the Gulf of Maine; impacts of on and off-shore oil development in Alaska; and atmospheric deposition of nutrients and toxics in the Great Lakes.

This is not to imply that the regions do not have overlapping problems; in fact, all experience most categories of pollution to some extent. One of the advantages of this type of approach is that the different regions can benefit from the various emphases in each other's programs. Coordinating research at the regional level would encourage innovative multidisciplinary programs targeting specific regional needs, which in turn should enable more rapid and effective management decisions to be made in each region.

In order for this bill to succeed at its maximum potential and to guarantee that it complement and not duplicate other federally funded coastal initiatives, it is imperative that the regional aspect be kept as strong as possible. Given the prevailing mindset of the Federal agencies involved -- by which they agree on the one hand that efforts to date have been ineffective in stopping or even slowing the degradation of the marine environment, but insist on the other hand that they are currently doing all that needs to be done and should be doing even less -- we suggest that there is a need for a new approach.

We need to address the coastal pollution crisis with programs which are answerable to regional estuarine marine systems in distress, not to the vagaries of national political climates. Consistent with Section 408, we would favor an organizational plan which gives the Federal Marine Research Coordinating Board circumscribed "review and approval" responsibilities, while giving the Regional Marine Research Centers the mandate to determine and oversee individual regional agendas.

The corresponding bill in the Senate has been amended to have NOAA serve as chair of the Board instead of EPA. Rather than suggest a preference for NOAA, EPA or some other agency -- since any one agency has its champions and critics -- we suggest that the report language make abundantly clear the fact that the chair role is a ministerial task which does not afford any special "lead role" authority. In addition, while Section 408

does not directly address the issue of criteria setting, we would like to make it clear that, in our view, it is not necessary or desirable for the Federal Board to prescribe stringent criteria, as this would tend to direct research programs toward a national agenda rather than the desired unique regional agendas.

We would suggest an organizational plan, as part of H.R. 4231, which would answer the need to encourage innovative research plans tailored to specific regional characteristics and goals. As prescribed in the bill (under Sections 404 and 409), the Federal Board would review, hold hearings for, and accept or reject proposals for the establishment of Regional Marine Research Centers. The Regional Centers would be responsible for developing the Regional Research Plans (Section 405), with the Federal Board responsible for reviewing and approving or rejecting the plans on the basis of format and general content guidelines, not specific content. In other words, the Regional Centers would be guaranteed the power to set their own agendas -- agendas that are likely to differ from national agendas and those of other regions. While we endorse this regional approach, we would recommend that the Regional Research Plans take into account the needs, goals and priorities being developed in adjacent regions, so that multi-regional issues can be addressed effectively.

C. A peer review system is needed.

In order to ensure the highest possible quality of research under this Act, we would like to see a system of external peer review introduced. The individual research proposals submitted to the Regional Centers should be sent through some form of rigorous peer review on a national (e.g., National Science Foundation), inter-regional or regional level. The Regional Centers would approve or reject proposals based on consideration of the external peer reviews and consistency with goals defined by the Regional Research Plan.

D. The framework for interfacing between scientists and citizens should be expanded.

The board of directors and a research advisory group of each Regional Marine Research Center (Section 404) provide an opportunity for direct interfacing among policy makers, regulators, researchers, fishermen, industrialists, other users and environmental groups. This is one important way in which this bill distinguishes itself from other existing programs (Sea Grant being the notable exception), and the opportunity for effective collaboration at this level should be promoted aggressively. This interactive role could be strengthened in

H.R. 4231, however, and in our opinion it would strengthen the whole bill.

H.R. 4231 provides for input by the research advisory group in advising the board of directors (Section 404 (e)(2)(E)) and a forum for review of research plans by affected user and interest groups (Section 404(b)(5)). It also provides for the board of directors to submit scientific recommendations (Section 404(b)(9)) and nontechnical reports on the status of marine environmental quality (Section 407(a) and (b)). However, there is no provision for a forum of direct exchange between scientists conducting research and users and interest groups trying to utilize the scientific information. This could be provided for under section 404(b) and/or (e) and would, in our view, be highly desirable.

E. <u>The relative importance of research and monitoring should be clarified or the funding level should be significantly increased.</u>

In our opinion, the funding levels proposed in H.R. 4231 will make it difficult, if not impossible, to adequately support both monitoring and research that will produce effective results -- progress toward reversing the continuing degradation of the coastal marine environment. Since basic and applied research, baseline studies and monitoring are all essential to understanding and assessing marine ecosystems, our first recommendation is to significantly increase the maximum levels at which the Regional Centers can be funded. In the absence of such an increase, however, we would recommend a system by which each Regional Center assesses its priority needs relative to basic and applied research and monitoring.

Basic and applied research provides information on how a system and its components respond to specific stresses. With this information, predictions can be made about the likely consequences of proposed activities in the regional marine environments. Based on these predictions, decisions can be made about whether an activity should be undertaken and/or whether modifications should be made in the procedure. Monitoring, on the other hand occurs along with the activity and documents the consequences. Since the consequences are not always reversible, good management decisions cannot always be made after the fact. Effective, well designed monitoring allows us to determine whether ongoing activities are causing changes (either desirable or undesirable). The combination of basic and applied research and baseline studies could provide the basis for designing effective monitoring programs to be carried out by institutions able to commit staff and equipment for long enough time periods to make monitoring meaningful.

Although we advocate letting each Regional Center determine its relative needs and capabilities in the areas of basic and applied research and monitoring, we would suggest a general, tiered pattern of basic research, followed by applied research, followed by monitoring. At the same time, though, we recognize that different regions may find themselves entering at different stages in this pattern.

In various forums including Congressional hearings, a strong case has been made for research which would give us a better understanding of how the whole ecosystem performs as it responds to various stresses imposed by human activities. This would suggest that basic research is called for and ought to be a central element initially. Under the Marine Research Act, basic research would be encouraged in all coastal environs, regardless of their stage of degradation. That effort would allow valuable comparisons to be made among systems less stressed and those in a crisis situation, with the anticipated result that new crises can be prevented. This approach contrasts sharply with current national research and monitoring programs which have targeted a limited number of specific estuaries with intense pollution problems.

Applied research takes its direction from basic research and from management needs. There is likely to be an initial need for applied research concurrent with basic research, but the need will expand as more basic information is accumulated regionally.

Monitoring programs are best directed by the results of basic and applied research, and it should be expected that the most meaningful, best designed and most efficient monitoring programs will evolve from regionally oriented basic and applied research performed under the Marine Research Act or other sponsorship. Furthermore, because of the long term staffing and monetary commitment usually necessary, Federal agencies may be better equipped to meet some of the monitoring needs on the regional level. The Regional Centers should carefully coordinate monitoring programs with agencies such as NOAA, EPA, MMS and USGS.

Conclusion

Although the oceans have been in existence for billions of years, their degradation is a process which began only recently, a by-product of an increasingly crowded and complex world. The responsibility is ours to protect those aeons of natural investment. Other problems may seem more immediate, but few are as pervasive in their implications.

Underlying my testimony today, an ecological ethic is essential if we are going to ensure the protection, conservation

and wise use of our vital marine resources. With such an ethic firmly in place, policies affecting the future of the oceans and near-coastal waters can and must be developed, implemented and carried out with environmental consequences and respect for the linkages in the ecosystem as primary considerations. My organization supports the Marine Research Act as one step toward achieving these goals.

Again, thank you for the opportunity to participate in today's hearing. I would be happy to answer any questions that you might have.

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ENVIRONMENTAL POLICY INSTITUTE

STATEMENT OF CHARLES FOX
DIRECTOR, COASTAL PROTECTION PROJECT
ENVIRONMENTAL POLICY INSTITUTE

BEFORE A JOINT HEARING OF THE SUBCOMMITTEE ON OCEANOGRAPHY, SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT, COMMITTEE ON MERCHANT MARINE AND FISHERIES, U.S. HOUSE OF REPRESENTATIVES

ON H.R. 4231, THE MARINE RESEARCH ACT OF 1988

JUNE 29, 1988

Mr. Chairmen and Members of the Subcommittees:

My name is Charles Fox and I am the Director of the Coastal Protection Project for the Environmental Policy Institute (EPI). EPI is a national, nonprofit organization engaged in environmental research, education, litigation and advocacy. We have been active on a range of coastal issues for over a decade, including in-depth work for almost five years on the Chesapeake Bay restoration effort. We greatly appreciate your invitation to appear at this joint hearing to share our views on H.R. 4231, the Marine Research Act of 1988.

This Committee, more than any Committee in Congress, is well aware of the growing threats to our nation's coastal environments. Under the leadership of Committee Chairman Walter B. Jones (D,NC), and Subcommittee Chairmen Gerry Studds (D,MA) and Mike Lowry (D,WA), the House Merchant Marine and Fisheries Committee has undertaken a series of oversight hearings on a range of threats to our coastal environments. No other Committee has responded to this emerging crisis in such a thorough and

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comprehensive manner. Great credit and praise should be extended to the Members of this Committee for their timely and extensive review of the host of problems affecting coastal ecosystems.

Attached to our statement is testimony we presented before the Senate Environment and Public Works Committee in support of a companion bill introduced by Senator George Mitchell (D,ME) and many of his colleagues. That testimony was made on behalf of American Oceans Campaign, Chesapeake Bay Foundation, Clean Water Action, Coalition for the Bight, Connecticut Fund for the Environment, Conservation Law Foundation of New England, Committee to Preserve Assateague Island, Environmental Policy Institute, Friends of the Earth, Group for the South Fork, Izaak Walton League of America, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, North Carolina Coastal Federation, Puget Sound Alliance, Save the Bay, and Westport River Watershed Alliance.

EPI's statement this afternoon will summarize and supplement our previous testimony. First, we will discuss briefly the pressing need for this legislation. Then, as was requested by Subcommittee staff, we will offer our comments on the amendments adopted by the other body at its recent full Committee markup. Finally, we will conclude with a number of recommendations which we believe should be incorporated in the legislation by this Committee.

1. Strengthened research and monitoring programs are an important and essential first step in the emerging efforts to combat coastal degradation.

Adequate information on the scope and extent of today's coastal threats is essential to effective ecosystem management. Unfortunately, however, existing research and monitoring programs of federal and state governments do not provide important information to coastal decision-makers or to the general public. Very few research and monitoring programs are organized to provide comprehensive *ecosystem-wide* information to decision-makers.[1] Such fundamental informational needs, for example, include data on: i) cumulative pollution loads, sources, and effects; ii) land use and habitat changes, and effects on water quality and living resources; and, iii) living resource population changes, including causes and effects.

Existing research and monitoring programs commonly lack clear statements of ecosystem-wide goals and objectives. Moreover, regulatory agencies and other coastal decision-makers are rarely involved in the important task of guiding the development and interpretation of comprehensive research and monitoring programs. Furthermore, essential information synthesis and dissemination needs are not being met through existing programs.

Public and internal reports of the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) reveal the need for *major* improvements in coastal research and monitoring programs.[2] Of particular

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1 Important exceptions include programs recently established by NOAA's Oceans Assessment Division and a handful of regional efforts such as Chesapeake Bay, Puget Sound and San Francisco Bay. It should be mentioned, however, that these programs have limitations as well.

2 See *Surface Water Monitoring: A Framework for Change*, U.S.

importance, the reports suggest the need for ecosystem-based programs, including, in one NOAA report, a specific recommendation for new *regional* research and monitoring programs.[3]

2. H.R. 4231 would greatly enhance coastal research and monitoring programs. It would focus research and monitoring programs toward priority information needs. It would promote comprehensive management strategies to address widespread coastal degradation.

The proposed legislation seeks to address the shortcomings of existing research and monitoring programs in a number of ways. The attached testimony we presented to the Senate Environment and Public Works Committee discusses the benefits of the legislation in some detail. At this time, we would like to just briefly highlight some of the major strengths of H.R. 4231.

Under the legislation, regional centers would be charged with the task of developing long-range research and monitoring programs to evaluate *specific* ecosystem-wide problems such as water and sediment quality degradation, habitat modifications, and living resource declines. Necessarily, this will require a

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Environmental Protection Agency, Office of Water, Office of Policy, Planning and Evaluation, Washington, D.C., September, 1987; *NOAA Estuarine Research Program Development Plan*, National Oceanic and Atmospheric Administration, Estuarine Programs Office, Washington, D.C., November, 1987; *Information for Decisionmaking, NOAA Coastal Ocean Initiative*, National Oceanic and Atmospheric Administration, National Ocean Service, March, 1988; *Technical Information and Research Needs to Support a National Estuarine Research Strategy*, U.S. Environmental Protection Agency, Office of Water, Washington, D.C., January, 1986; *NOAA Estuarine and Coastal Ocean Science Framework*, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Estuarine Programs Office, Washington, D.C., October, 1987.

3 See *Draft Ecosystems Monitoring and Fisheries Management, Program Development Plan*, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, September, 1987.

rigorous examination and evaluation of major threats to coastal ecosystems. Ultimately, with the active involvement of federal and state regulatory agencies envisioned in the bill, this will lay the groundwork for comprehensive management actions to address widespread coastal degradation.

The regional, ecosystem approach acknowledges the site-specific data requirements of federal, state and local decision-makers and forces a much-needed evaluation of cumulative impacts to coastal ecosystems. Moreover, it will lead to the establishment of comprehensive information systems for decision-makers and the general public.

The regional approach also allows important flexibility to focus attention and resources at priority problems which vary significantly throughout the country. It offers an appropriate federal role in providing technical and financial assistance to state governments. It also assures a certain equity in the distribution of resources toward region-specific threats to coastal environments.

3. **The amendments recently adopted by the Senate Environment and Public Works Committee will serve to streamline implementation by reducing overhead costs and avoiding potential problems associated with duplication of efforts. The amendments also strengthen the legislation by providing a more prominent role for the National Sea Grant Program and by establishing a peer review system.**

At this point, as was requested by Subcommittee staff, we would like to discuss the amendments adopted by the Senate Environment and Public Works Committee at its recent markup of the companion bill. Overall, the amendments significantly

strengthen the proposed legislation. However, as we will discuss later, we believe that a number of additional improvements should be made.

Most importantly, the Senate amendments directly address concerns which were raised regarding duplication of effort and the potential high overhead costs associated with implementation. Specific language was added to assure maximum use of existing facilities and administrative resources, particularly those of the National Sea Grant Program. Additional language was included to incorporate the findings and recommendations of the national plan developed pursuant to the National Ocean Pollution Planning Act of 1978. Moreover, the term "regional *centers*" was changed to "regional *programs*" to emphasize that brand new facilities and equipment need not be constructed or purchased.

Importantly, the bill retains its extremely modest authorization cap of $500,000 per year for the administrative, equipment and facilities costs associated with the operation of each regional program.

The amendments greatly enhance the role of the National Sea Grant Program and the National Oceanic and Atmospheric Administration. Under the amendments, the proposals to establish each regional research and monitoring program will be developed by state Sea Grant Program Directors. In addition, the regional Boards of the Directors are required to include at least one member who is a Director of a Sea Grant Program in the region.

The amendments provide that a representative of the

National Oceanic and Atmospheric Administration serve as chair of the national Oversight Board. Previously, this role was delegated to a representative of the Environmental Protection Agency.

During Senate Committee consideration, a number of witnesses expressed concern about the lack of peer review in the legislation. In response, the Committee also added language requiring the establishment of a peer review system to include review by at least two research scientists from a region other than that in which the specific project is proposed.

Additional amendments were added to strengthen the role of the Research Advisory Group which is composed of broad-based representation from a variety of public interests. The Research Advisory Groups will serve in an important oversight capacity to the regional programs.

4. **The legislation should be strengthened further with additional amendments to: i) increase authorized funding levels; ii) provide a long-term dedicated source of funds; iii) sharpen the mandate to undertake comprehensive monitoring; and, iv) enhance the information synthesis and dissemination roles of the national Oversight Board and the Regional Programs.**

Finally, we would like to discuss four recommendations which we believe would strengthen the legislation. Most importantly, authorized funding levels must be increased substantially and a long-term *secure* source of funds must be established. The Senate amendments did not increase authorized funding levels in the legislation, although it is our understanding that additional legislation will be introduced to

establish a long-term Marine Research Trust Fund.

Coastal monitoring needs alone would likely exceed the sum authorized in the proposed legislation. Additional needs for research, information synthesis and communications would be substantial. If the legislation is to successfully achieve its goals, and if state governments and private institutions are to be actively involved and supportive of the program, funding levels must be increased significantly. Roughly, we would expect that the program authorization should at least be *doubled*.

However, in addition to simply increasing the overall funding authorization, a long-term source of funds must be established. The disappointing funding history of the new Clean Water Act Amendments is a revealing case in point. We would encourage the Subcommittees to examine a host of innovative funding options, including an increase in existing discharge permit fees which, unfortunately, in no way cover the real costs of ambient research and monitoring.[4] Absent a dedicated source of funds, this new program may siphon money from valuable existing coastal programs; in our view, this would be unacceptable.

The legislation would also benefit from a sharper mandate to conduct comprehensive coastal monitoring on a range of important parameters. Our experience suggests that effective monitoring programs can provide an important "early warning" system to enhance coastal management and pinpoint emerging ecosystem threats. Equally important, effective monitoring

4 EPA's *Surface Water Monitoring: A Framework for Change* (March, 1987) recommended an examination of this funding option.

programs can stimulate quick action on a range of priority problems in coastal environments. A specific charge that the regional programs must establish comprehensive monitoring programs should be included in the legislation.

Finally, we believe that the information synthesis and dissemination roles of the regional programs should be enhanced, including strict criteria and guidance to assure that research and monitoring programs will support pressing management needs. Federal, state and local governments, as well as the general public, must have easy access to ecosystem-wide information in order to evaluate proposed activities and various management options. This information must evaluate priority threats and be readily understandable to the lay public. Unfortunately, experience throughout the country reveals that without sufficient attention and resources devoted to information synthesis and dissemination, much of the knowledge gained through research and monitoring activities will be lost.

In conclusion, the ultimate success of this program will be dependent on the active involvement and support of often-disparate federal and state agencies and citizen groups throughout the country. Substantial leadership on the part of this Committee and other Members of Congress will be required to meet this challenge. Given pressing national needs, it is our hope that this will occur in a timely fashion.

Thank you for the opportunity to present our views on the legislation.

ENVIRONMENTAL POLICY INSTITUTE

STATEMENT OF CHARLES FOX
DIRECTOR, COASTAL PROTECTION PROJECT
ENVIRONMENTAL POLICY INSTITUTE

ON BEHALF OF

AMERICAN OCEANS CAMPAIGN
CHESAPEAKE BAY FOUNDATION
CLEAN WATER ACTION
COALITION FOR THE BIGHT
CONNECTICUT FUND FOR THE ENVIRONMENT
CONSERVATION LAW FOUNDATION OF NEW ENGLAND
COMMITTEE TO PRESERVE ASSATEAGUE ISLAND
ENVIRONMENTAL POLICY INSTITUTE
FRIENDS OF THE EARTH
GROUP FOR THE SOUTH FORK
IZAAK WALTON LEAGUE OF AMERICA
NATIONAL AUDUBON SOCIETY
NATIONAL WILDLIFE FEDERATION
NATURAL RESOURCES DEFENSE COUNCIL
NORTH CAROLINA COASTAL FEDERATION
PUGET SOUND ALLIANCE
SAVE THE BAY
WESTPORT RIVER WATERSHED ALLIANCE

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ON

S. 2068, THE MARINE RESEARCH ACT OF 1988

APRIL 28, 1988

218 D Street, S.E., Washington, D.C. 20003 (202) 544-2600

Mr. Chairman and Members of the Subcommittee:

My name is Charles Fox and I am the Director of the Coastal Protection Project for the Environmental Policy Institute (EPI). EPI is a national, nonprofit organization engaged in environmental research, education, litigation and advocacy. We greatly appreciate your invitation to appear here this morning to share our views on S. 2068, the Marine Research Act of 1988.

Our statement this morning is made on behalf of American Oceans Campaign, Chesapeake Bay Foundation, Clean Water Action, Coalition for the Bight, Connecticut Fund for the Environment, Conservation Law Foundation of New England, Committee to Preserve Assateague Island, Environmental Policy Institute, Friends of the Earth, Group for the South Fork, Izaak Walton League of America, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, North Carolina Coastal Federation, Puget Sound Alliance, Save the Bay, and Westport River Watershed Alliance.

I. INTRODUCTION AND SUMMARY

We would like to commend Subcommittee Chairman George Mitchell and other cosponsors of the legislation for this timely and important effort to improve our knowledge of coastal ecosystems in order to improve long-range management. We believe that the proposed legislation would complement and substantially

strengthen existing coastal research and monitoring programs of federal and state governments. Current programs, unfortunately, do not adequately address the pressing, ecosystem-wide informational needs of resource managers at all levels of government. Moreover, existing research and monitoring programs have been plagued with inadequate funding.

The legislation proposes the establishment of regional research and monitoring centers throughout the nation. These centers would coordinate and direct research and monitoring activities of federal and state agencies as well as private and public research institutions. Importantly, the legislation focuses research and monitoring activities on assessments of ecosystem-wide trends, including cumulative impacts of pollution loads and habitat losses. National coordination needs among the various regional centers would be served by the proposed Marine Research Coordination Board.

A major strength of this proposed legislation is its regional, ecosystem-based approach to coastal research and monitoring. Too often, research and monitoring programs are not directed toward addressing basic questions on the cumulative effects of pollution loads, habitat losses, and resource declines. The regretable result is that federal, state and local decision-makers often do not have access to essential information necessary to evaluate proposed activities and various management options.

The bill also includes important provisions to coordinate

the myriad of coastal research and monitoring functions performed by literally hundreds of government agencies and institutions across America. As part of this coordination, the legislation proposes to involve *directly* federal and state regulatory agencies in the development and interpretation of long-range research and monitoring programs. This integration and involvement is essential to the development of successful management strategies.

Our testimony this morning is summarized as follows:

1. Existing ecosystem-wide coastal problems will demand ecosystem-wide responses from federal, state and local governments. Research and monitoring programs must be structured to support these management needs.

2. Existing research and monitoring programs have not adequately provided essential, ecosystem-wide information to decision-makers and the general public. Funding levels for coastal research and monitoring programs have been inadequate.

3. The legislation's proposed regional centers would greatly enhance long-term coastal management by focusing research and monitoring toward the priority information needs of decision-makers. The legislation offers an appropriate and effective federal role in providing technical and financial assistance to the regional centers.

4. The legislation's mechanisms for coordination and *direct* involvement of federal and state regulatory agencies will significantly improve the development and interpretation of research and monitoring programs. This involvement will promote comprehensive management strategies.

Our testimony concludes with a number of recommendations which would strengthen the proposed legislation. Most importantly, we believe that its authorized funding levels must be increased substantially and that a long-term, *secure* source of funds must be established. In addition, the legislation should

strengthen its mandate to the regional centers to assure that sufficient attention is devoted to coastal monitoring and crucial management and informational needs. Finally, we believe that the legislation should clarify and distinguish its relationship to existing regional research and monitoring efforts such as those in Puget Sound, San Francisco Bay and Chesapeake Bay.

II. ECOSYSTEM-WIDE NEEDS

Existing ecosystem-wide coastal problems will demand ecosystem-wide responses from federal, state and local governments. Research and monitoring programs must be structured to support these management needs.

In recent years, a growing body of evidence has emerged which suggests that our nation is facing a coastal crisis. Cumulatively, habitat loss, toxic contamination, nutrient enrichment, and pathogen contamination threaten both public health and ecosystem health from coast to coast.

Excessive nutrient pollution, for example, has fueled the growth of algae and led to dramatic losses in dissolved oxygen in many coastal waters throughout the country. In 1985 and 1986, a 3,000 to 4,000 square mile area in the Gulf of Mexico experienced low dissolved oxygen, most likely the result of an apparent two-fold increase in nutrient pollution from the Mississippi River in the past decade.[1] Similar so-called anoxic events have been documented in Chesapeake Bay, Long Island Sound and large portions of the coastal waters off New York and New Jersey. The U.S. Environmental Protection Agency has concluded that virtually all coastal waters adjacent to major urban areas

1 *Wastes in the Marine Environment*, Office of Technology Assessment, U.S. Congress, Washington, D.C., April, 1987.

may be threatened by such eutrophication.[2]

In addition, toxic contamination of coastal waters, sediments and biota pose significant threats to public health and the coastal environment. Throughout the country, toxic contaminants have been linked to acute and chronic effects on finfish and shellfish, particularly bottom-dwelling species near urban areas. Tumors, cancerous lesions, skeletal anomalies, shell disease, ulcers and fin rot have been found frequently in highly contaminated portions of Boston Harbor, San Francisco Bay, Puget Sound, Santa Monica Bay, New York-New Jersey Harbor and Chesapeake Bay.[3]

Cumulatively, habitat losses and over-development also have had substantial adverse impacts on coastal ecosystems. In San Francisco Bay, for example, over 90 percent of coastal wetlands have been destroyed. Nationwide, over 50 percent of coastal wetlands have been lost to development in the last century.[4] Furthermore, resource projections indicate that continued population pressures will exacerbate existing habitat problems in the future.

Effective resolution of these and other threats to coastal ecosystems will demand multifaceted actions from all levels of government. A recent, unprecedented citizens conference hosted by Save the Bay of Rhode Island resulted in the development of a comprehensive national agenda to protect and restore our nation's

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2 *Near Coastal Waters Strategic Options Paper*, U.S. Environmental Protection Agency, Office of Marine and Estuarine Protection, Washington, D.C., August, 1986.

3 *Wastes.*

4 *Near Coastal Waters.*

coastal ecosystems.[5] The week-long conference, which involved representatives from 65 organizations throughout the country, culminated with a series of detailed recommendations to control water pollution and protect sensitive coastal lands.

The national agenda stresses the need for management actions on a diverse array of problems which threaten coastal environments. Such problems include, but are not limited to:

* agricultural practices which destroy wetlands and contribute excessive nutrients, sediments and pesticides to coastal waters;
* poorly treated sewage and industrial discharges which contribute a range of toxic contaminants, pathogens and nutrients to coastal waters and sediments;
* existing toxic "hot spots" which threaten living resources and export contaminants to other coastal areas; and,
* uncontrolled growth and the loss of sensitive habitats which degrade water quality and adversely impact living resources.

Comprehensive research and monitoring programs are essential to meeting these management challenges. While priority problems and specific management needs may vary from region to region, *all* regions must successfully identify, evaluate and respond to major ecosystem threats. Increasingly, decision-makers look to research and monitoring programs to predict ecosystem responses to proposed activities and various management options.

Decision-makers' needs range from the specific effects of a single toxic compound on a single species to more complex questions about the cumulative effects of various habitat modifications. To meet these and other needs, research and

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5 *Saving Our Bays, Sounds, and the Great Lakes: The National Agenda*, Save the Bay, Inc., Providence, Rhode Island, April, 1988.

monitoring programs must be well structured and adequately funded, including clear statements of ecosystem-wide goals and objectives. However, as we will spotlight, existing research and monitoring programs have not adequately addressed the information needs of decision-makers and the general public.

III. LACK OF ESSENTIAL, ECOSYSTEM-WIDE INFORMATION

Existing research and monitoring programs have not adequately provided essential, ecosystem-wide information to coastal decision-makers and the general public. Funding levels for coastal research and monitoring programs have been inadequate.

By way of definition, in general, coastal monitoring programs seek to observe and describe coastal ecosystems including pollution loads, water and sediment quality, habitat, and living resources. Long-range monitoring programs can quantify ecosystem trends, such as changes in water quality parameters or habitat types. Coastal research programs, on the other hand, are more interpretive in nature. Research programs seek to evaluate ecosystem processes including, for example, the transport, fate and effects of contaminants in coastal environments. In practice, the distinctions between monitoring and research often are blurred. Programmatically, coastal monitoring and research must be integrated with complementary goals to meet the information needs of decision-makers.

Coastal research and monitoring is performed by literally hundreds of government agencies and institutions under mandates of dozens of statutes and programs at all levels of government. At the federal level, at least nine major agencies and departments,[6] operating under at least 13 major statutes,[7] are

6 Including, the National Oceanic and Atmospheric

involved in some important aspect of coastal ecosystem research and monitoring.

Management and coordination needs are truly immense. And not surprisingly, this issue has been the focus of much attention over the years. Numerous interagency workshops, agreements, and memoranda of understanding have been devoted to improving coordination among federal and state agencies, public and private research institutions, and decision-makers. On balance, great progress can been seen in this area over recent years.

However, for coastal decision-makers at federal and state levels, this attention has not produced essential information for ecosystem management. Fundamentally, very few research and monitoring programs are organized to provide comprehensive ecosystem-wide information to decision-makers.[8] Such information needs include ecosystem-wide data on:

* cumulative pollution loads, sources and effects;
* land use and habitat changes and sources, and effects on water quality and living resources; and,

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Administration, the Environmental Protection Agency, the Geologic Survey, the Fish & Wildlife Service, the Army Corps of Engineers, the Coast Guard, the National Aeronautics and Space Administration and numerous agencies within the Departments of Agriculture and Defense.

7 Including, the Marine Protection, Research and Sanctuaries Act; the Clean Water Act; the National Ocean Pollution Policy Act; the National Sea Grant College Act; the Magnuson Fishery Conservation Act; the Anadromous Fish Conservation Act; the Food, Drug, and Cosmetic Act; the Endangered Species Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Food Security Act; the Coastal Zone Management Act; the Fungicide, Insecticide and Rodenticide Act; and, the Toxic Substances Control Act.

8 Important exceptions include programs recently established by NOAA's Oceans Assessment Division and a handful of regional efforts such as Chesapeake Bay, Puget Sound and San Francisco Bay. However, these programs have limitations as well, some of which are identified later in this statement.

* living resource population changes, including causes and effects.

Grossly inadequate funding levels are certainly a major factor in this absence of essential ecosystem-wide information. However, research and monitoring programs commonly lack clear statements of ecosystem-wide goals and objectives. Moreover, regulatory agencies and other coastal decision-makers are rarely involved in guiding the development and interpretation of comprehensive coastal research and monitoring programs. In addition, vitally important information synthesis and dissemination needs are not being met through existing programs.

A more specific discussion of the needs for existing coastal monitoring and research programs is appropriate at this juncture. Monitoring programs, in particular, must be substantially redirected and enhanced if we are to successfully provide the information base necessary for decision-making.

Coastal Monitoring Needs

At the most basic level, coastal monitoring programs often do not address *major* sources of pollution to coastal waters. For example, specific data regarding pollution loads from agricultural runoff, combined sewer overflows, storm drains, oil and gas operations, contaminated sediments or the atmosphere commonly are unavailable. The result, obviously, is that local coastal managers are unable to evaluate the nature and extent of these sources in any specific manner.

Historically, coastal monitoring programs have been directed

toward geographically-narrow, so-called "compliance" monitoring of specific discharges. Only recently have greater attention and resources been devoted to broader, ecosystem-wide ambient monitoring of coastal waters and sediments. However, the scope and extent of water and sediment quality monitoring in coastal areas remain *extremely* limited.

Similarly, living resources monitoring has focused narrowly on higher trophic levels such as commercially important finfish and shellfish. Comprehensive data rarely are maintained on vitally important ecosystem communities such as phytoplankton or submerged aquatic vegetation.

The U.S. Environmental Protection Agency recently completed an assessment of surface water monitoring which bluntly concluded: "The present approach to surface water monitoring cannot fully provide the information that managers increasingly need."[9] The report also revealed that most states actually have *reduced* their number of regularly-sampled fixed stations over the past few years in response to the rising cost of data collection and analysis and the growing need for monitoring in support of point source control decisions.

Of equal concern, coastal monitoring programs generally devote too little attention and resources to the analysis, synthesis and interpretation of existing monitoring data. In the long-term, this is inefficient and costly. Not only are existing data not used by decision-makers, but it also prevents

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9 *Surface Water Monitoring: A Framework for Change*, U.S. Environmental Protection Agency, Office of Water, Office of Policy, Planning and Evaluation, Washington, D.C., September, 1987.

refinements in ongoing monitoring programs and may mask emerging long-term trends. Ideally, significant resources should be devoted to the synthesis and communication of data, in various forms, to decision-makers and the general public.

Coastal Research Needs

Numerous ongoing processes of federal and, to a lesser extent, state governments seek to identify priority research needs for coastal ecosystems. Not surprisingly, these needs are tremendous. Both the National Oceanic and Atmospheric Administration[10] and the U.S. Environmental Protection Agency[11] recently completed evaluations of priority research needs for coastal ecosystems.

Research on coastal contaminants and habitat modifications appear to top the agenda. Pressing needs on contaminants research include a better understanding of the transport, fate and effects of toxics, pathogens and nutrients in the coastal environment. Beyond these general needs are a *host* of specific research questions which can range from the role of sediments in ecosystem nutrient cycling to the synergistic effects of toxic contaminants on important coastal populations.

Similarly, habitat research needs range from the effects of changes in freshwater flows into estuaries to the relationships between terrestrial habitats and aquatic populations. Other

10 *NOAA Estuarine and Coastal Ocean Science Framework*, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Estuarine Programs Office, Washington, D.C., October, 1987.

11 *Technical Information and Research Needs to Support a National Estuarine Research Strategy*, U.S. Environmental Protection Agency, Office of Water, Washington, D.C., January, 1986.

priority research needs include living resources and population dynamics, as well as public health threats from contaminated seafood.

There are numerous pollution control research needs not commonly identified by coastal researchers. For example, so-called "best management practices" which are promoted to control agricultural nonpoint source pollution are not always "best" from a water quality or habitat protection standpoint. The U.S. Department of Agriculture recently identified a number of priority research needs to protect water quality.[12]

Coastal policy research needs are also significant. Complex federal and state tax policies, for example, have an important (but specifically unknown) effect on coastal development, whether urban, suburban or agricultural in nature. Research needs also include innovative state and local government programs and policies to protect sensitive lands, control diffuse sources of pollution, and provide funding for environmental programs.

IV. FEDERAL LEADERSHIP

The proposed regional centers would greatly enhance long-term coastal management by focusing research and monitoring toward the priority informational needs of decision-makers. The legislation offers an appropriate federal role in providing technical and financial assistance to state governments.

As we have described, existing research and monitoring programs have not adequately provided essential information to coastal decision-makers and the general public. In many ways, this has stymied effective management actions on a range of

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12 *1987 Soil and Water Conservation Research and Education Progress and Needs*, U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C., June, 1987.

threats to coastal environments.

The proposed legislation seeks to remedy this situation by establishing regional research and monitoring centers to collect and disseminate essential information about major threats to coastal ecosystems.

Under the legislation, regional centers would be charged with the task of developing long-range research and monitoring programs to evaluate *specifically* ecosystem-wide problems such as water and sediment quality degradation, habitat modifications, and living resource declines. Necessarily, this will require specific examination and evaluation of major threats to coastal ecosystems. Ultimately, this will lay the groundwork for comprehensive management actions.

The regional, ecosystem approach offers many benefits. Fundamentally, it acknowledges the site-specific data requirements of federal, state and local decision-makers and forces a necessary evaluation of cumulative impacts to coastal ecosystems. It will lead to the establishment of comprehensive information systems for decision-makers and the general public.

The regional approach also allows important flexibility to focus attention and resources at priority problems which vary significantly throughout the country. It assures a certain equity in the distribution of resources toward more narrow, regional-specific threats to coastal environments.

It should be mentioned that the overall goals and regional foci of the legislation in many ways parallel recent draft

program proposals of the National Oceanic and Atmospheric Administration.[13] These draft proposals acknowledge both major gaps in existing information and the need to organize research and monitoring programs on an ecosystem basis.

The proposed regional centers and national coordination board also would provide significant benefits to the federal government. The legislation would greatly enhance national information on coastal resources and environmental threats. It would provide an improved basis for assessing priority national problems and responding, where appropriate, with administrative and/or legislative remedies.

In addition, the proposed legislation retains the broader federal interest in the ongoing activities of the regional centers by mandating that the national coordination board approve certain plans. This important mechanism ultimately may assure that regional research and monitoring strategies are directed toward priority management needs.

V. COMPREHENSIVE MANAGEMENT STRATEGIES

The mechanisms for coordination and *direct* involvement of federal and state regulatory agencies proposed in the legislation will significantly improve the development and interpretation of research and monitoring programs. This involvement will promote comprehensive management strategies.

The proposed legislation would mandate state and federal agency participation in the development of the research and monitoring programs of the regional centers. The primary

13 See *Draft Ecosystems Monitoring and Fisheries Management, Program Development Plan*, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, September, 1987, and *Information for Decisionmaking, NOAA Coastal Ocean Initiative*, National Oceanic and Atmospheric Administration, National Ocean Service, March, 1988.

benefits of this approach are two-fold: 1) the specific needs of decision-makers will be reflected in program development; and, 2) the decision-makers themselves will be involved in interpreting the results. This latter point is particularly important with respect to the subsequent development of management strategies to address ecosystem needs.

It can be argued, for example, that the Chesapeake Bay "success story" was a function of the direct involvement of the federal government and three states' agencies in the comprehensive study which identified the priority ecosystem threats. In effect, the study's *process* achieved consensus among the many regulatory agencies on specific management needs. Subsequent political leadership by Governor Harry Hughes and others produced the results. Today, this approach is integral to the Environmental Protection Agency's National Estuary Program.

The proposed Research Advisory Groups and public reporting requirements provide additional benefits for the legislation. The Research Advisory Groups, with their broad-based composition of public interests, would serve in an important oversight capacity to the regional centers. In addition, the legislation's mandate that public assessment reports be drafted in non-technical style will help to involve interested citizens.

VI. RECOMMENDED MODIFICATIONS TO THE LEGISLATION

Finally, we would like to discuss three recommendations which would strengthen the proposed legislation. If the Subcommittee desires, we would be happy to submit specific

legislative language at a later date.

Most importantly, we believe that the authorized funding levels must be increased significantly, particularly for future fiscal years after an appropriate period for program start-up. In addition, it is essential that a long-term, *secure* source of funding be provided.

Existing research and monitoring needs throughout the country are truly immense and $3,000,000 per year for each regional center will in no way meet America's critical needs. The costs of an adequate monitoring program alone for each region probably would exceed that sum. Additional needs for research, information synthesis and communications would be substantial.

Furthermore, the need for a long-term *secure* source of funds is crucial. One need only look at the recent funding history of the new Clean Water Act programs to realize that sufficient appropriations for a new program such as this may not be forthcoming. Absent a dedicated source of funds, this new program may siphon money from valuable existing coastal programs. In our view, this would be completely unacceptable.

The legislation also would benefit from a more direct mandate that research and monitoring programs are to support ecosystem-wide management needs, including a specific charge that comprehensive monitoring programs must be established. We believe that the legislation should provide more strict criteria to the regional centers to assure adequate attention is devoted to critical issues such as cumulative pollution loads, habitat

losses and adequate fresh water inflow. Furthermore, the information synthesis and dissemination roles of the regional centers should be enhanced.

Finally, we believe that the legislation must clarify its relationship to existing regional research and monitoring programs such as those in Chesapeake Bay, Puget Sound and San Francisco Bay. Despite their "higher profiles," these areas have significant research and monitoring needs as well. We would encourage the Subcommittee to solicit input on this issue from citizens groups and federal and state officials in these and other important regions.

In conclusion, the ultimate success of this program will be dependent significantly on the active involvement and support of often-disparate federal and state agencies and citizen groups throughout the country. Substantial leadership on the part of this Subcommittee and other Members of Congress will be required to meet this challenge. Given pressing national needs, it is our sincere hope that this will occur in a timely fashion.

Thank you for the opportunity to offer our views on the proposed legislation.

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